EP2C602-2T2OS6/D16
EP2C602-2TS6/D16
EP2C602-2L+2OS6/D16
EP2C602-2L+OS6/D16
EP2C602-2OS6/D16
EP2C602-2T/D16
EP2C602-2O/D16
EP2C602-O/D16
EP2C602-2L+O/D16
EP2C602-2L+/D16
EP2C602-S6/D16

User Manual

Version 1.3

Published October 2013

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This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

CALIFORNIA, USA ONLY

The Lithium battery adopted on this motherboard contains Perchlorate, a toxic substance controlled in Perchlorate Best Management Practices (BMP) regulations passed by the California Legislature. When you discard the Lithium battery in California, USA, please follow the related regulations in advance.
"Perchlorate Material-special handling may apply, see
www.dtsc.ca.gov/hazardouswaste/perchlorate"

ASRock Website: http://www.asrock.com

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Chapter 1: Introduction

Thank you for purchasing ASRock ***EP2C602 Series*** motherboard, a reliable motherboard produced under ASRock's consistently stringent quality control. It delivers excellent performance with robust design conforming to ASRock's commitment to quality and endurance.

In this manual, chapter 1 and 2 contains the introduction of the motherboard and step-by-step hardware installation guide. Chapter 3 and 4 contains the configuration guide of BIOS setup and information of the Support CD.

Because the motherboard specifications and the BIOS software might be updated, the content of this manual will be subject to change without notice. In case any modifications of this manual occur, the updated version will be available on ASRock's website without further notice. You may find the latest VGA cards and CPU support list on ASRock's website as well. ASRock website http://www.asrock.com

If you require technical support related to this motherboard, please visit our website for specific information about the model you are using.

www.asrock.com/support/index.asp

1.1 Package Contents

ASRock ***EP2C602 Series*** Motherboard

(SSI EEB Form Factor: 12.0-in x 13-in, 30.5 cm x 33.0 cm)

User Manual

Support CD

2 x Serial ATA (SATA) Data Cables (Optional)

1 x I/O Panel Shield

1.2 Specifications

Physical Status	Form Factor	SSI EEB
	Dimension	12" x 13" (30.5 cm x 33.0 cm)
Processor System	CPU	Supports Intel® Xeon processor E5-1600*/2600/4600 & v2 series * E5-1600 support single socket.
	Socket	Dual Socket R (LGA2011)
	Power Phase	5 +1 Power Phase Design
	Chipset	Intel® C602
BIOS	BIOS type	64Mb AMI UEFI Legal BIOS
System Memory	Max. Capacity	512GB DDR3 RDIMM
	Socket	16 x 240-pin DDR3 DIMM slots
	Type	Quad Channel DDR3 1600/1333/1066 LR / Registered /ECC/ UDIMM
	Voltage	1.5V, 1.35V
Expansion Slot	PCIe 3.0 x 16	2 slots (2 x16)
	PCIe 3.0 x 4	NA
	PCIe 2.0 x 1	NA
	PCI	NA
Storage	SATA/SAS controller	Intel® C602: 2 x SATA3 6.0 Gb/s, 8 x SATA2 3.0 Gb/s (from 2 x mini SAS 8087 connector)
	Additional SATA controller	NA
	Additional SAS2 controller	**EP2C602-2T2OS6/D16 / EP2C602-2TS6/D16 / EP2C602-2L+2OS6/D16 / EP2C602-2L+OS6/D16 / EP2C602-2OS6/D16 / EP2C602-S6/D16**
		LSI 2308: 8 x SAS2 6Gbps (from 2 x mini SAS 8087 connector)
		EP2C602-2T/D16 / EP2C602-2O/D16 / EP2C602-O/D16 / EP2C602-2L+O/D16 / EP2C602-2L+/D16
		NA

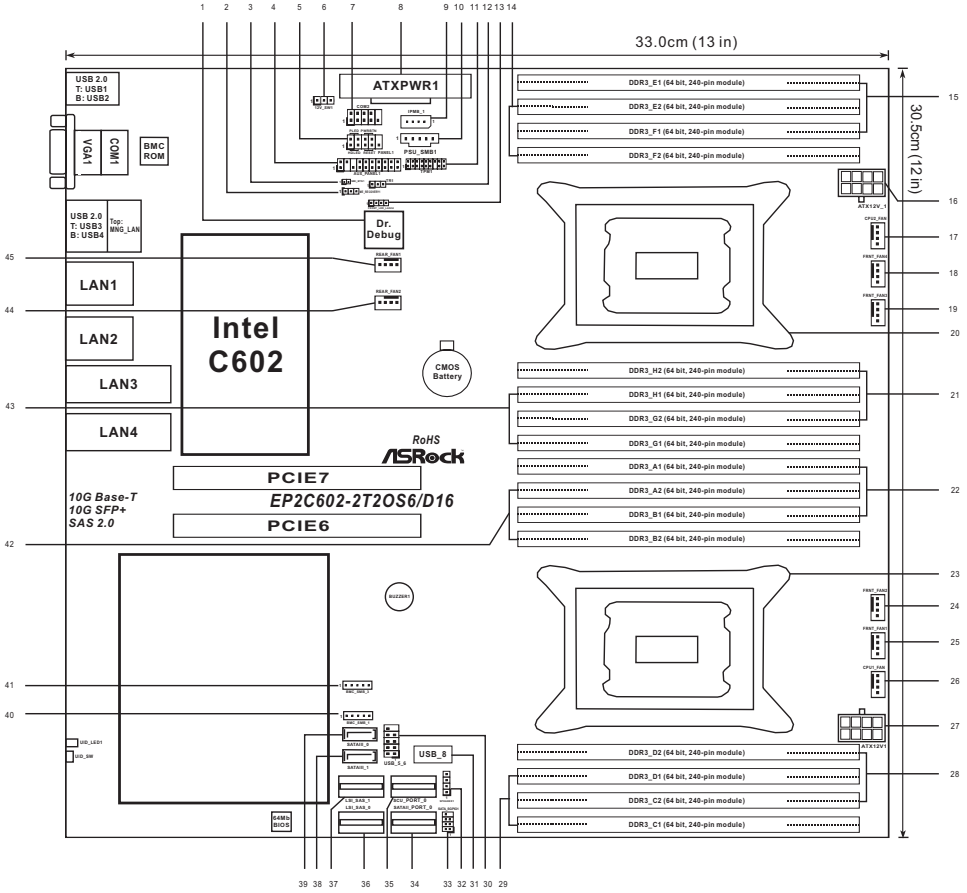
Graphics	Controller	ASPEED AST2300
	VRAM	DDR3 16MB
	Output	Supports D-Sub with max. resolution up to 1920x1200 @ 60Hz
Ethernet	Interface	Intel® 82599ES/82599EN: 10G Intel® X540-AT2: 10G/1G/100M Intel® i350: 1G/100M/10M
	LAN Controller	**EP2C602-2T2OS6/D16**
		1 x Intel® 82599ES (10G fiber, SFP+), 1 x Intel® X540-AT2 (10GBase-T)
		EP2C602-2L+2OS6/D16
		1 x Intel® 82599ES (10G fiber, SFP+), 1 x Intel® i350 (GLAN)
		EP2C602-2OS6/D16 / EP2C602-2O/D16
		1 x Intel® 82599ES (10G fiber, SFP+)
		EP2C602-2TS6/D16 / EP2C602-2T/D16
		1 x Intel® X540-AT2 (10GBase-T)
		EP2C602-O/D16
		1 x Intel® 82599EN (10G fiber, SFP+)
		EP2C602-2L+OS6/D16 / EP2C602-2L+O/D16
		1 x Intel® 82599EN (10G fiber, SFP+), 1 x Intel® i350 (GLAN)
		EP2C602-2L+/D16 / EP2C602-S6/D16
		1 x Intel® i350 (GLAN)
Manage-ment	Controller	ASPEED AST2300
	IPMI dedicated GLAN	Realtek RTL8211E
Audio	Audio Codec	NA
Rear Panel I/O	Lan port (SFP+)	**EP2C602-2T2OS6/D16 / EP2C602-2L+2OS6/D16 / EP2C602-2OS6/D16 / EP2C602-2O/D16**
		2
		EP2C602-2L+OS6/D16 / EP2C602-2L+O/D16 / EP2C602-O/D16
		1

		EP2C602-2TS6/D16 / EP2C602-2T/D16 / EP2C602-2L+/D16 / EP2C602-S6/D16
		0
	Lan port (RJ45)	**EP2C602-2T2OS6/D16 / EP2C602-2L+2OS6/D16 / EP2C602-2L+OS6/D16 / EP2C602-2TS6/D16 / EP2C602-2T/D16 / EP2C602-2L+O/D16 / EP2C602-2L+/D16 / EP2C602-O/D16 / EP2C602-S6/D16**
		2 + 1 (for IPMI)
	PS/2 KB/ mouse	NA
	VGA port	D-sub x 1
	USB port	4 x USB 2.0
	Serial port	1 (COM1)
	Audio jack	NA
Internal connector	COM port header	1 (COM2)
	Auxiliary panel header	1 (include chassis intrusion, location button & LED, front LAN LED)
	TPM header	1
	IPMB header	1
	Buzzer	1
	Fan header	8 x 4-pin
	ATX power	1 (24-pin) + 2 (8-pin)
	USB header	2 (each support 2 USB 2.0)
	Type A USB 2.0 port	1
Internal connector	80 debug port LED	1
	Front panel	1
	Speaker (4pin)	1
	1394 header	NA
Support OS	OS	Microsoft® Windows® Server 2008 / 2008 R2 / Linux compliant

* For detailed product information, please visit our website: http://www.asrock.com

1.3 Motherboard Layout

EP2C602-2T2OS6/D16



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10	PSU SMBus (PSU_SMB1)
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12	Thermal Sensor header (TR1)
13	Front Lan LED Connector (FRONT_LED_LAN34)
14	2 x 240-pin DDR3 DIMM Slots
	(DDR3_F2, DDR3_E2, White)
15	2 x 240-pin DDR3 DIMM Slots
	(DDR3_F1, DDR3_E1, Blue)
16	ATX 12V Power Connector (ATX12V_1)
17	CPU Fan Connector (CPU2_FAN)
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23	2011-Pin CPU Socket (CPU_BSP1)
24	Front Fan Connector (FRNT_FAN2)
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26	CPU Fan Connector (CPU1_FAN)
27	ATX 12V Power Connector (ATX12V1)
28	2 x 240-pin DDR3 DIMM Slots
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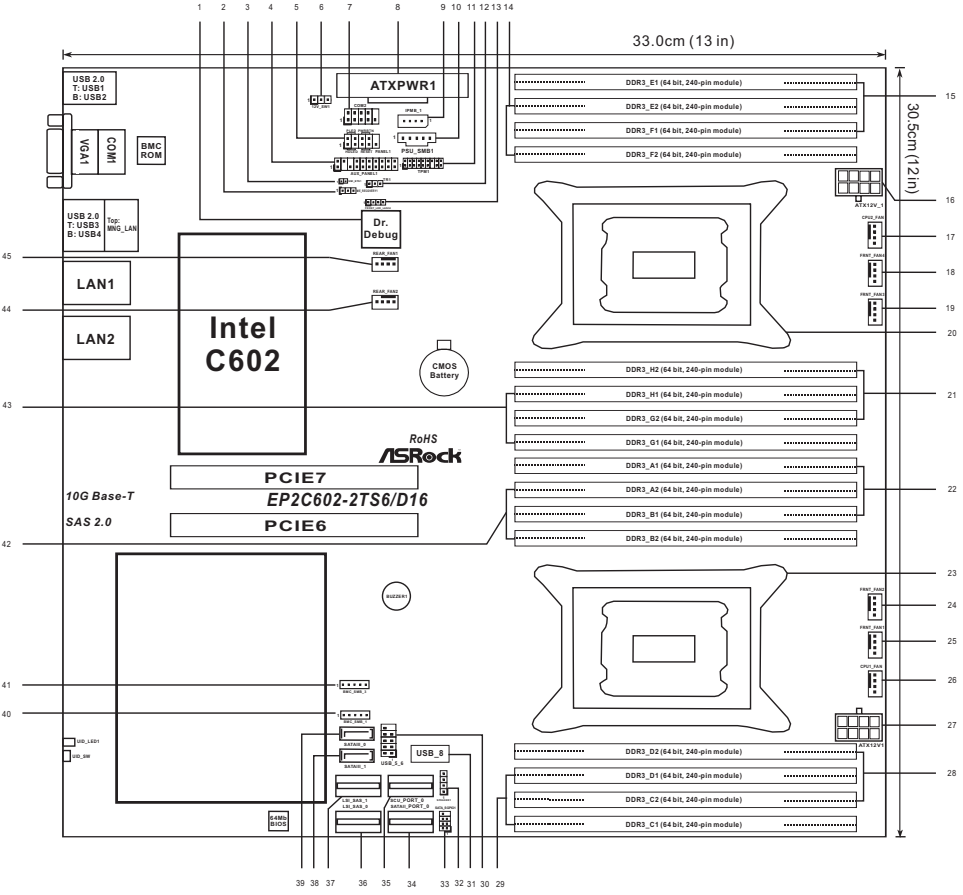

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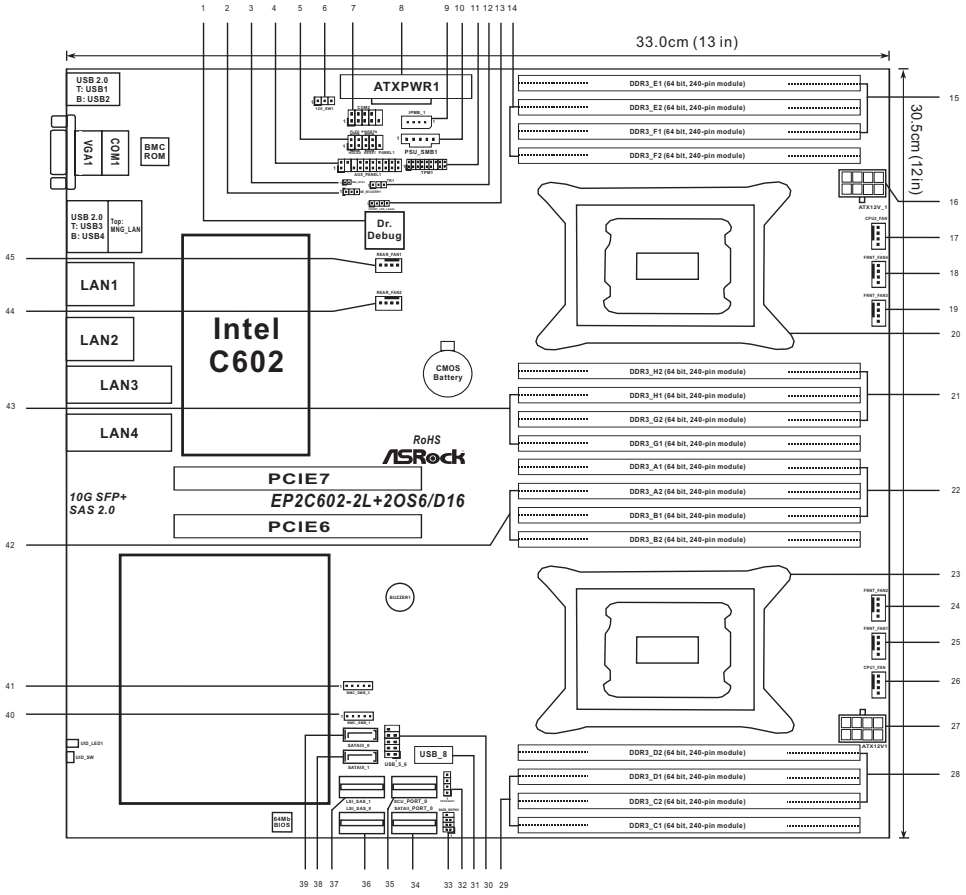

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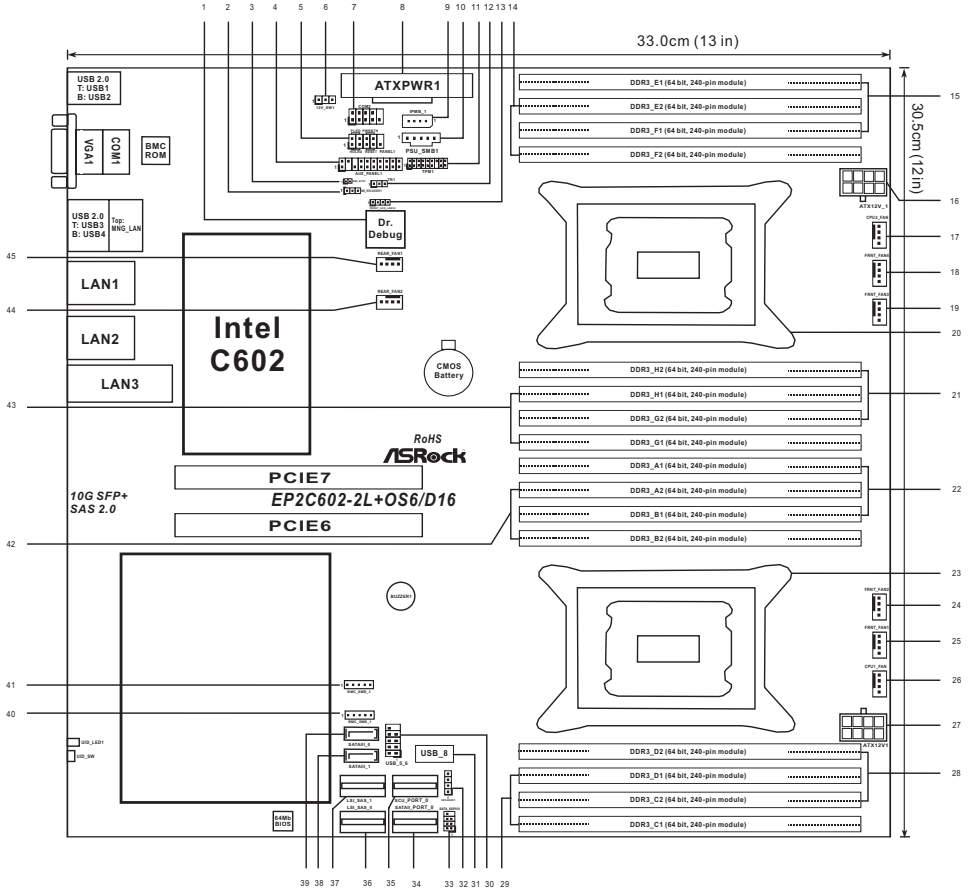

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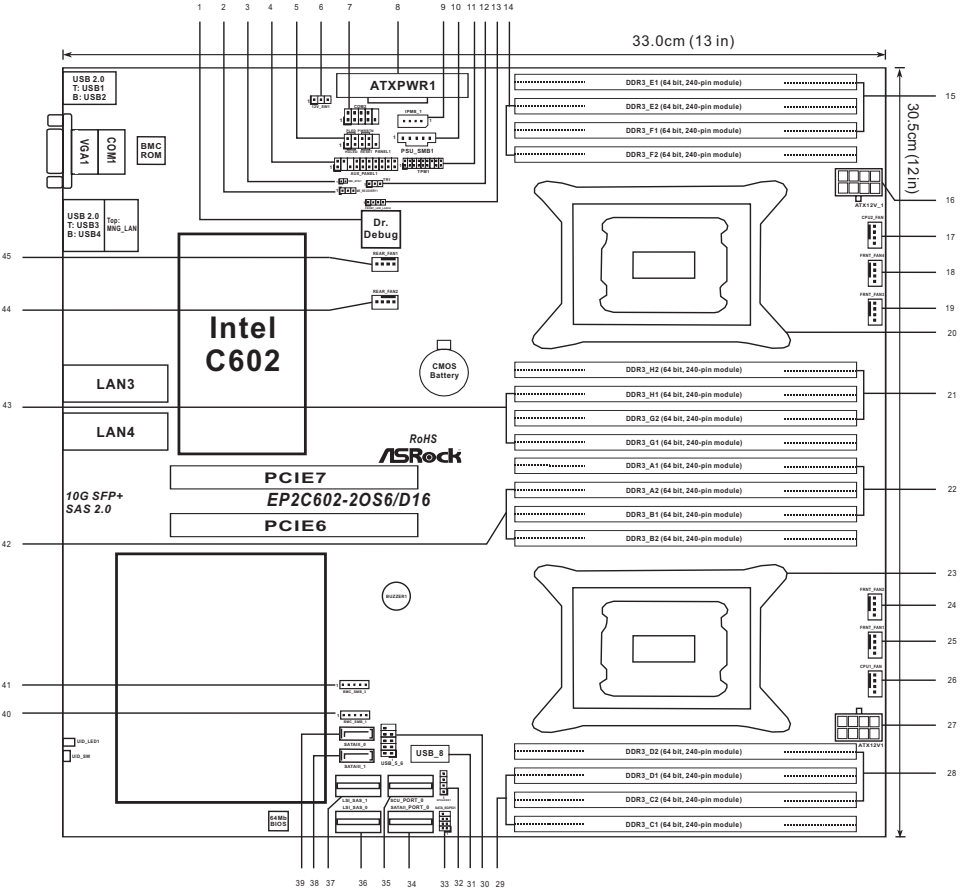

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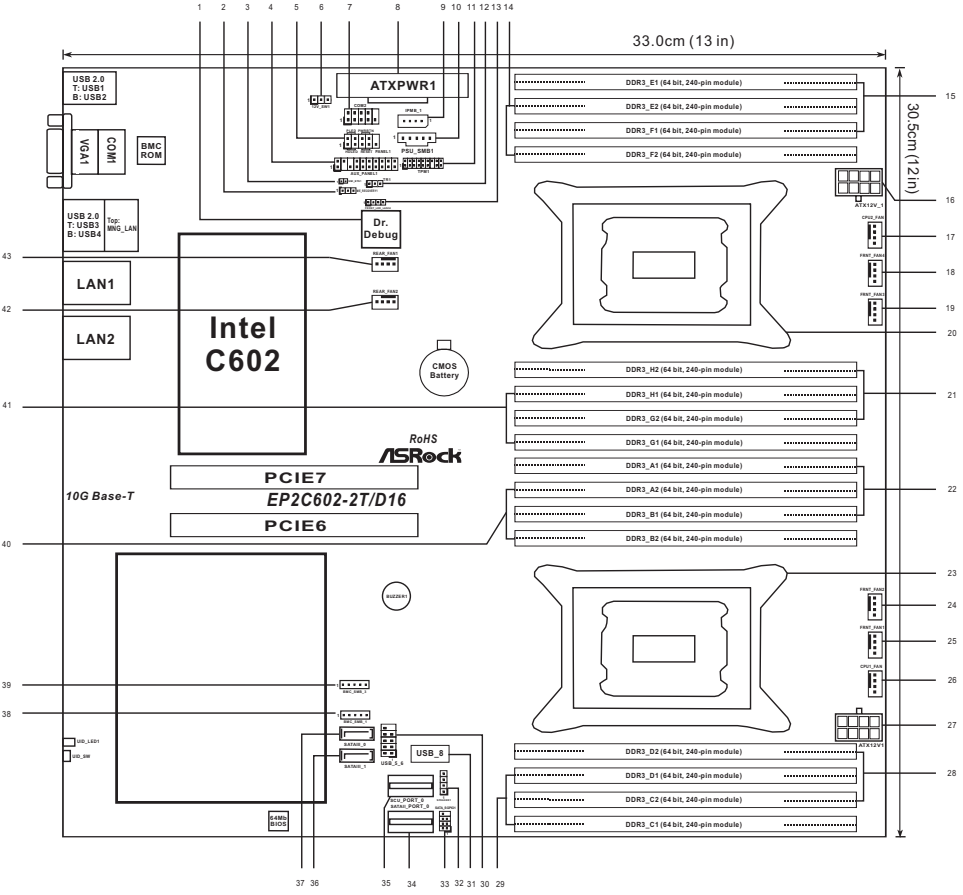
45	Rear Fan Connector (REAR_FAN1)

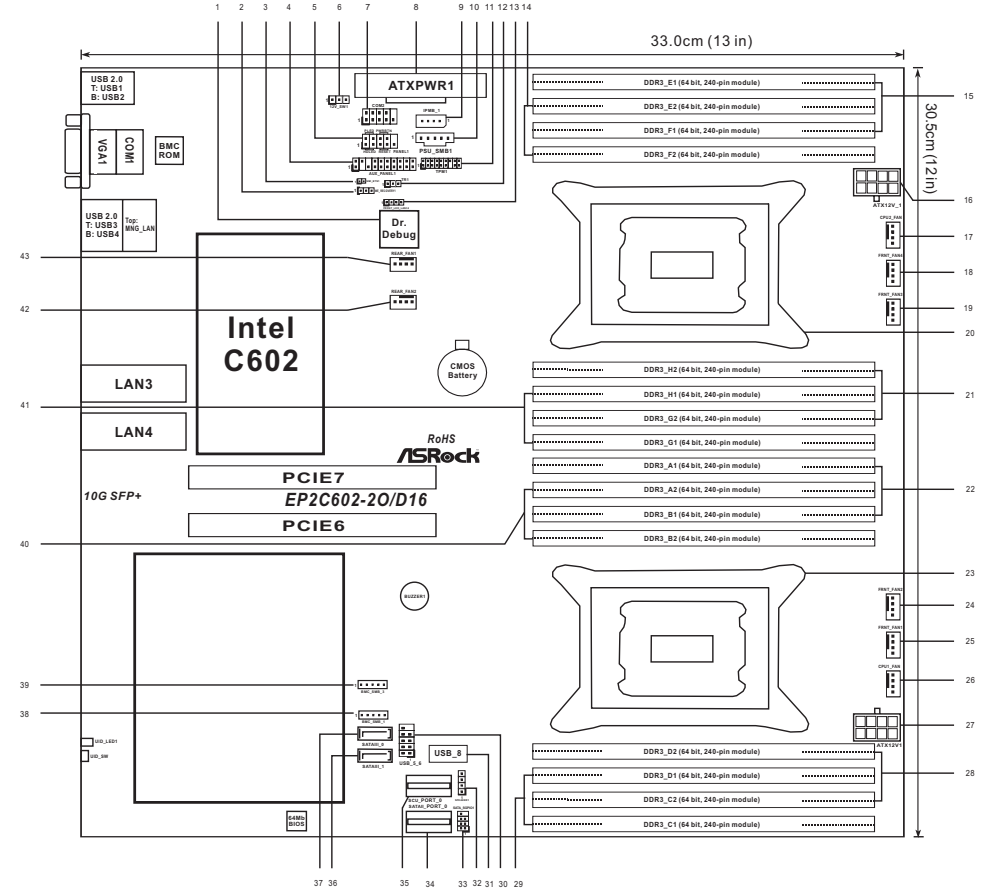
EP2C602-2T/D16



1	Dr. Debug
2	ME Recovery Jumper (ME_RECOVERY1)
3	Non Maskable Interrupt Button (NMI_BTN1)
4	Auxiliary panel header (AUX_PANEL1)
5	System Panel Header (PANEL1)
6	-12V Switch Header (12V_SW1)
7	COM Port Header (COM2)
8	ATX Power Connector (ATXPWR1)
9	Intelligent Platform Management Bus header (IPMB_1)
10	PSU SMBus (PSU_SMB1)
11	TPM Header (TPM1)
12	Thermal Sensor header (TR1)
13	Front Lan LED Connector (FRONT_LED_LAN34)
14	2 x 240-pin DDR3 DIMM Slots
	(DDR3_F2, DDR3_E2, White)
15	2 x 240-pin DDR3 DIMM Slots
	(DDR3_F1, DDR3_E1, Blue)
16	ATX 12V Power Connector (ATX12V_1)
17	CPU Fan Connector (CPU2_FAN)
18	Front Fan Connector (FRNT_FAN4)
19	Front Fan Connector (FRNT_FAN3)
20	2011-Pin CPU Socket (CPU_AP1)
21	2 x 240-pin DDR3 DIMM Slots
	(DDR3_H2, DDR3_G2, White)
22	2 x 240-pin DDR3 DIMM Slots
	(DDR3_A1, DDR3_B1, Blue)
23	2011-Pin CPU Socket (CPU_BSP1)
24	Front Fan Connector (FRNT_FAN2)
25	Front Fan Connector (FRNT_FAN1)
26	CPU Fan Connector (CPU1_FAN)
27	ATX 12V Power Connector (ATX12V1)
28	2 x 240-pin DDR3 DIMM Slots
	(DDR3_D2, DDR3_C2, White)
29	2 x 240-pin DDR3 DIMM Slots
	(DDR3_C1, DDR3_D1, Blue)

30	USB 2.0 Header (USB_5_6)
31	USB 2.0 Port (USB_8)
32	Speaker Header (SPEAKER1)
33	SATA SGPIO Connector (SATA_SGPIO1)
34	SATA2 Connector (SATAII_PORT_0)
35	SCU Connector (SCU_PORT_0)
36	SATA3 Connector (SATAIII_1)
37	SATA3 Connector (SATAIII_0)
38	BMC SMB Header (BMC_SMB1)
39	BMC SMB Header (BMC_SMB3)
40	2 x 240-pin DDR3 DIMM Slots
	(DDR3_A2, DDR3_B2, White)
41	2 x 240-pin DDR3 DIMM Slots
	(DDR3_H1, DDR3_G1, Blue)
42	Rear Fan Connector (REAR_FAN2)
43	Rear Fan Connector (REAR_FAN1)

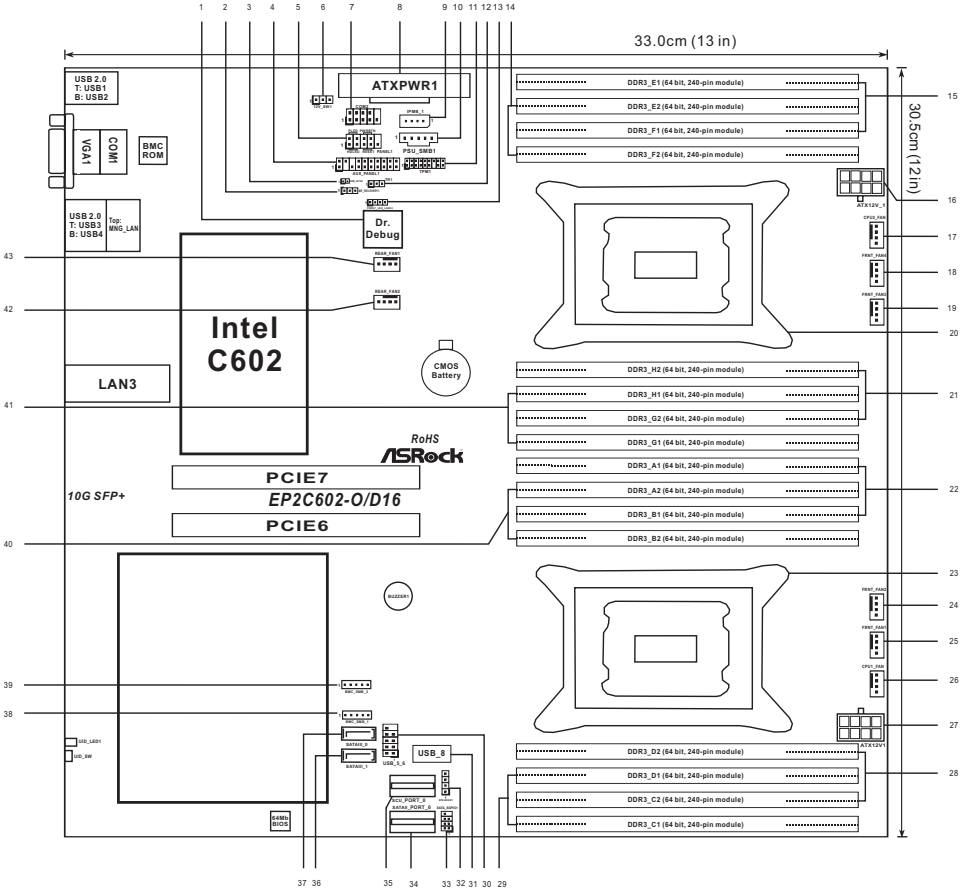
EP2C602-2O/D16



1	Dr. Debug
2	ME Recovery Jumper (ME_RECOVERY1)
3	Non Maskable Interrupt Button (NMI_BTN1)
4	Auxiliary panel header (AUX_PANEL1)
5	System Panel Header (PANEL1)
6	-12V Switch Header (12V_SW1)
7	COM Port Header (COM2)
8	ATX Power Connector (ATXPWR1)
9	Intelligent Platform Management Bus header (IPMB_1)
10	PSU SMBus (PSU_SMB1)
11	TPM Header (TPM1)
12	Thermal Sensor header (TR1)
13	Front Lan LED Connector (FRONT_LED_LAN34)
14	2 x 240-pin DDR3 DIMM Slots
	(DDR3_F2, DDR3_E2, White)
15	2 x 240-pin DDR3 DIMM Slots
	(DDR3_F1, DDR3_E1, Blue)
16	ATX 12V Power Connector (ATX12V_1)
17	CPU Fan Connector (CPU2_FAN)
18	Front Fan Connector (FRNT_FAN4)
19	Front Fan Connector (FRNT_FAN3)
20	2011-Pin CPU Socket (CPU_AP1)
21	2 x 240-pin DDR3 DIMM Slots
	(DDR3_H2, DDR3_G2, White)
22	2 x 240-pin DDR3 DIMM Slots
	(DDR3_A1, DDR3_B1, Blue)
23	2011-Pin CPU Socket (CPU_BSP1)
24	Front Fan Connector (FRNT_FAN2)
25	Front Fan Connector (FRNT_FAN1)
26	CPU Fan Connector (CPU1_FAN)
27	ATX 12V Power Connector (ATX12V1)
28	2 x 240-pin DDR3 DIMM Slots
	(DDR3_D2, DDR3_C2, White)
29	2 x 240-pin DDR3 DIMM Slots
	(DDR3_C1, DDR3_D1, Blue)

30	USB 2.0 Header (USB_5_6)
31	USB 2.0 Port (USB_8)
32	Speaker Header (SPEAKER1)
33	SATA SGPIO Connector (SATA_SGPIO1)
34	SATA2 Connector (SATAII_PORT_0)
35	SCU Connector (SCU_PORT_0)
36	SATA3 Connector (SATAIII_1)
37	SATA3 Connector (SATAIII_0)
38	BMC SMB Header (BMC_SMB1)
39	BMC SMB Header (BMC_SMB3)
40	2 x 240-pin DDR3 DIMM Slots
	(DDR3_A2, DDR3_B2, White)
41	2 x 240-pin DDR3 DIMM Slots
	(DDR3_H1, DDR3_G1, Blue)
42	Rear Fan Connector (REAR_FAN2)
43	Rear Fan Connector (REAR_FAN1)

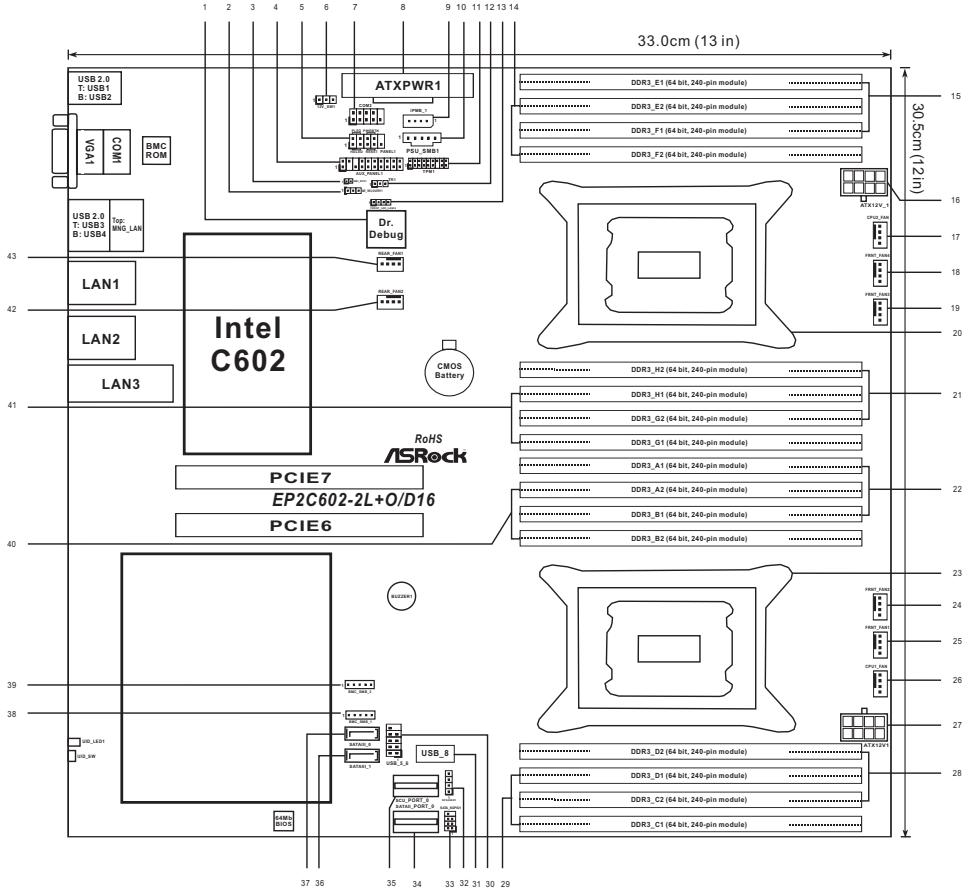
EP2C602-O/D16



1	Dr. Debug
2	ME Recovery Jumper (ME_RECOVERY1)
3	Non Maskable Interrupt Button (NMI_BTN1)
4	Auxiliary panel header (AUX_PANEL1)
5	System Panel Header (PANEL1)
6	-12V Switch Header (12V_SW1)
7	COM Port Header (COM2)
8	ATX Power Connector (ATXPWR1)
9	Intelligent Platform Management Bus header (IPMB_1)
10	PSU SMBus (PSU_SMB1)
11	TPM Header (TPM1)
12	Thermal Sensor header (TR1)
13	Front Lan LED Connector (FRONT_LED_LAN34)
14	2 x 240-pin DDR3 DIMM Slots
	(DDR3_F2, DDR3_E2, White)
15	2 x 240-pin DDR3 DIMM Slots
	(DDR3_F1, DDR3_E1, Blue)
16	ATX 12V Power Connector (ATX12V_1)
17	CPU Fan Connector (CPU2_FAN)
18	Front Fan Connector (FRNT_FAN4)
19	Front Fan Connector (FRNT_FAN3)
20	2011-Pin CPU Socket (CPU_AP1)
21	2 x 240-pin DDR3 DIMM Slots
	(DDR3_H2, DDR3_G2, White)
22	2 x 240-pin DDR3 DIMM Slots
	(DDR3_A1, DDR3_B1, Blue)
23	2011-Pin CPU Socket (CPU_BSP1)
24	Front Fan Connector (FRNT_FAN2)
25	Front Fan Connector (FRNT_FAN1)
26	CPU Fan Connector (CPU1_FAN)
27	ATX 12V Power Connector (ATX12V1)
28	2 x 240-pin DDR3 DIMM Slots
	(DDR3_D2, DDR3_C2, White)
29	2 x 240-pin DDR3 DIMM Slots
	(DDR3_C1, DDR3_D1, Blue)

30	USB 2.0 Header (USB_5_6)
31	USB 2.0 Port (USB_8)
32	Speaker Header (SPEAKER1)
33	SATA SGPIO Connector (SATA_SGPIO1)
34	SATA2 Connector (SATAII_PORT_0)
35	SCU Connector (SCU_PORT_0)
36	SATA3 Connector (SATAIII_1)
37	SATA3 Connector (SATAIII_0)
38	BMC SMB Header (BMC_SMB1)
39	BMC SMB Header (BMC_SMB3)
40	2 x 240-pin DDR3 DIMM Slots
	(DDR3_A2, DDR3_B2, White)
41	2 x 240-pin DDR3 DIMM Slots
	(DDR3_H1, DDR3_G1, Blue)
42	Rear Fan Connector (REAR_FAN2)
43	Rear Fan Connector (REAR_FAN1)

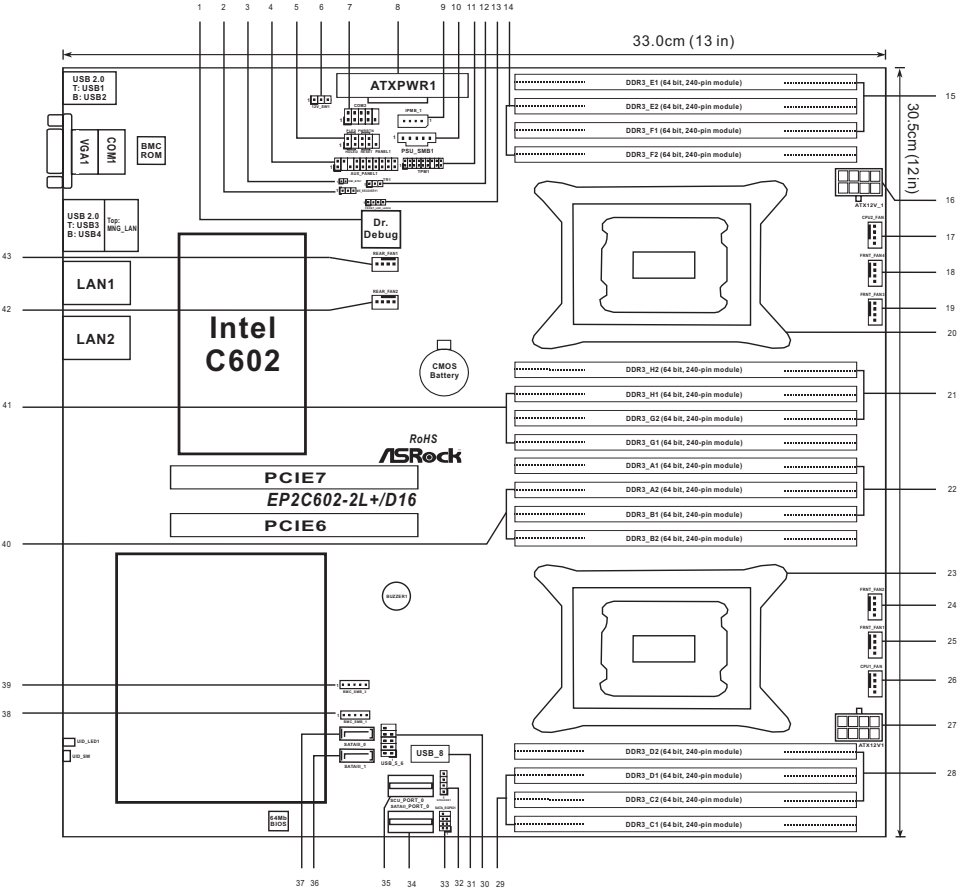
EP2C602-2L+O/D16



1	Dr. Debug
2	ME Recovery Jumper (ME_RECOVERY1)
3	Non Maskable Interrupt Button (NMI_BTN1)
4	Auxiliary panel header (AUX_PANEL1)
5	System Panel Header (PANEL1)
6	-12V Switch Header (12V_SW1)
7	COM Port Header (COM2)
8	ATX Power Connector (ATXPWR1)
9	Intelligent Platform Management Bus header (IPMB_1)
10	PSU SMBus (PSU_SMB1)
11	TPM Header (TPM1)
12	Thermal Sensor header (TR1)
13	Front Lan LED Connector (FRONT_LED_LAN34)
14	2 x 240-pin DDR3 DIMM Slots
	(DDR3_F2, DDR3_E2, White)
15	2 x 240-pin DDR3 DIMM Slots
	(DDR3_F1, DDR3_E1, Blue)
16	ATX 12V Power Connector (ATX12V_1)
17	CPU Fan Connector (CPU2_FAN)
18	Front Fan Connector (FRNT_FAN4)
19	Front Fan Connector (FRNT_FAN3)
20	2011-Pin CPU Socket (CPU_AP1)
21	2 x 240-pin DDR3 DIMM Slots
	(DDR3_H2, DDR3_G2, White)
22	2 x 240-pin DDR3 DIMM Slots
	(DDR3_A1, DDR3_B1, Blue)
23	2011-Pin CPU Socket (CPU_BSP1)
24	Front Fan Connector (FRNT_FAN2)
25	Front Fan Connector (FRNT_FAN1)
26	CPU Fan Connector (CPU1_FAN)
27	ATX 12V Power Connector (ATX12V1)
28	2 x 240-pin DDR3 DIMM Slots
	(DDR3_D2, DDR3_C2, White)
29	2 x 240-pin DDR3 DIMM Slots
	(DDR3_C1, DDR3_D1, Blue)

30	USB 2.0 Header (USB_5_6)
31	USB 2.0 Port (USB_8)
32	Speaker Header (SPEAKER1)
33	SATA SGPIO Connector (SATA_SGPIO1)
34	SATA2 Connector (SATAII_PORT_0)
35	SCU Connector (SCU_PORT_0)
36	SATA3 Connector (SATAIII_1)
37	SATA3 Connector (SATAIII_0)
38	BMC SMB Header (BMC_SMB1)
39	BMC SMB Header (BMC_SMB2)
40	2 x 240-pin DDR3 DIMM Slots
	(DDR3_A2, DDR3_B2, White)
41	2 x 240-pin DDR3 DIMM Slots
	(DDR3_H1, DDR3_G1, Blue)
42	Rear Fan Connector (REAR_FAN2)
43	Rear Fan Connector (REAR_FAN1)

EP2C602-2L+/D16



1	Dr. Debug
2	ME Recovery Jumper (ME_RECOVERY1)
3	Non Maskable Interrupt Button (NMI_BTN1)
4	Auxiliary panel header (AUX_PANEL1)
5	System Panel Header (PANEL1)
6	-12V Switch Header (12V_SW1)
7	COM Port Header (COM2)
8	ATX Power Connector (ATXPWR1)
9	Intelligent Platform Management Bus header (IPMB_1)
10	PSU SMBus (PSU_SMB1)
11	TPM Header (TPM1)
12	Thermal Sensor header (TR1)
13	Front Lan LED Connector (FRONT_LED_LAN34)
14	2 x 240-pin DDR3 DIMM Slots
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15	2 x 240-pin DDR3 DIMM Slots
	(DDR3_F1, DDR3_E1, Blue)
16	ATX 12V Power Connector (ATX12V_1)
17	CPU Fan Connector (CPU2_FAN)
18	Front Fan Connector (FRNT_FAN4)
19	Front Fan Connector (FRNT_FAN3)
20	2011-Pin CPU Socket (CPU_AP1)
21	2 x 240-pin DDR3 DIMM Slots
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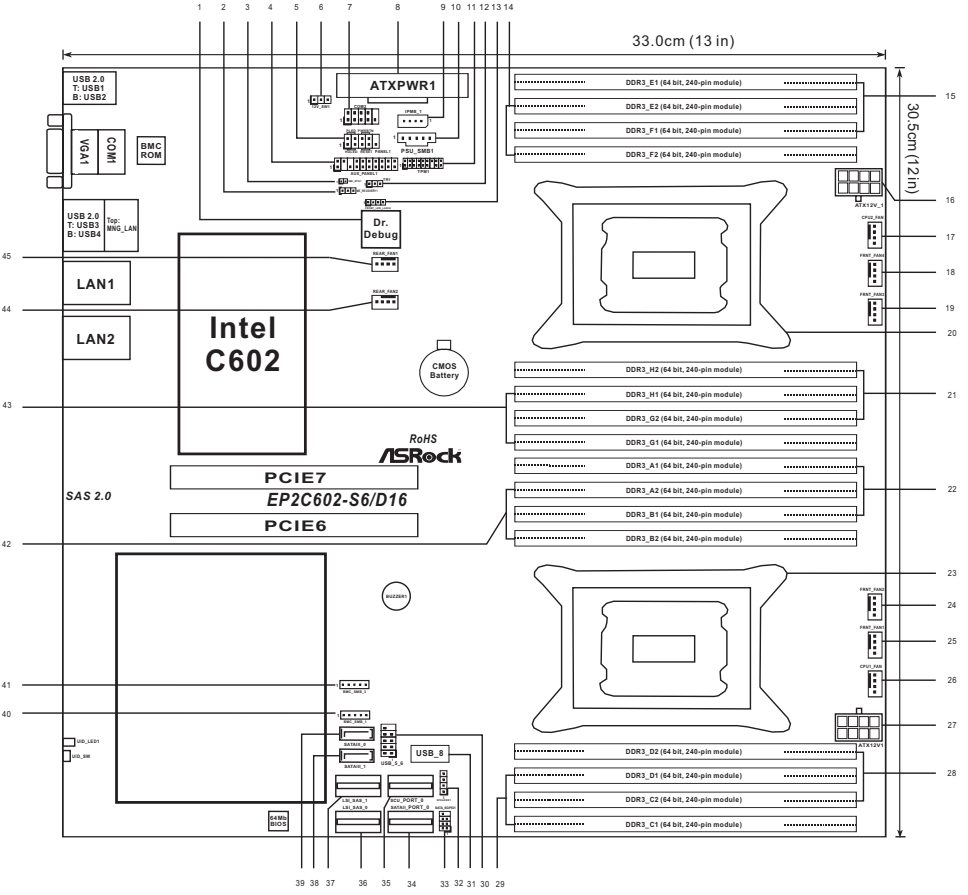
22	2 x 240-pin DDR3 DIMM Slots
	(DDR3_A1, DDR3_B1, Blue)
23	2011-Pin CPU Socket (CPU_BSP1)
24	Front Fan Connector (FRNT_FAN2)
25	Front Fan Connector (FRNT_FAN1)
26	CPU Fan Connector (CPU1_FAN)
27	ATX 12V Power Connector (ATX12V1)
28	2 x 240-pin DDR3 DIMM Slots
	(DDR3_D2, DDR3_C2, White)
29	2 x 240-pin DDR3 DIMM Slots
	(DDR3_C1, DDR3_D1, Blue)

30	USB 2.0 Header (USB_5_6)
31	USB 2.0 Port (USB_8)
32	Speaker Header (SPEAKER1)
33	SATA SGPIO Connector (SATA_SGPIO1)
34	SATA2 Connector (SATAII_PORT_0)
35	SCU Connector (SCU_PORT_0)
36	SATA3 Connector (SATAIII_1)
37	SATA3 Connector (SATAIII_0)
38	BMC SMB Header (BMC_SMB1)
39	BMC SMB Header (BMC_SMB2)
40	2 x 240-pin DDR3 DIMM Slots
	(DDR3_A2, DDR3_B2, White)
41	2 x 240-pin DDR3 DIMM Slots
	(DDR3_H1, DDR3_G1, Blue)
42	Rear Fan Connector (REAR_FAN2)
43	Rear Fan Connector (REAR_FAN1)

EP2C602-S6/D16

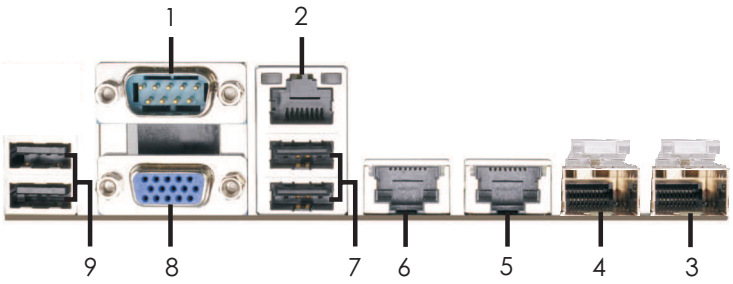


1	Dr. Debug
2	ME Recovery Jumper (ME_RECOVERY1)
3	Non Maskable Interrupt Button (NMI_BTN1)
4	Auxiliary panel header (AUX_PANEL1)
5	System Panel Header (PANEL1)
6	-12V Switch Header (12V_SW1)
7	COM Port Header (COM2)
8	ATX Power Connector (ATXPWR1)
9	Intelligent Platform Management Bus header (IPMB_1)
10	PSU SMBus (PSU_SMB1)
11	TPM Header (TPM1)
12	Thermal Sensor header (TR1)
13	Front Lan LED Connector (FRONT_LED_LAN34)
14	2 x 240-pin DDR3 DIMM Slots
	(DDR3_F2, DDR3_E2, White)
15	2 x 240-pin DDR3 DIMM Slots
	(DDR3_F1, DDR3_E1, Blue)
16	ATX 12V Power Connector (ATX12V_1)
17	CPU Fan Connector (CPU2_FAN)
18	Front Fan Connector (FRNT_FAN4)
19	Front Fan Connector (FRNT_FAN3)
20	2011-Pin CPU Socket (CPU_AP1)
21	2 x 240-pin DDR3 DIMM Slots
	(DDR3_H2, DDR3_G2, White)
22	2 x 240-pin DDR3 DIMM Slots
	(DDR3_A1, DDR3_B1, Blue)
23	2011-Pin CPU Socket (CPU_BSP1)
24	Front Fan Connector (FRNT_FAN2)
25	Front Fan Connector (FRNT_FAN1)
26	CPU Fan Connector (CPU1_FAN)
27	ATX 12V Power Connector (ATX12V1)
28	2 x 240-pin DDR3 DIMM Slots
	(DDR3_D2, DDR3_C2, White)
29	2 x 240-pin DDR3 DIMM Slots
	(DDR3_C1, DDR3_D1, Blue)

30	USB 2.0 Header (USB_5_6)
31	USB 2.0 Port (USB_8)
32	Speaker Header (SPEAKER1)
33	SATA SGPIO Connector (SATA_SGPIO1)
34	SATA2 Connector (SATAII_PORT_0)
35	SCU Connector (SCU_PORT_0)
36	LSI SAS Connector (LSI_SAS_0)
37	LSI SAS Connector (LSI_SAS_1)
38	SATA3 Connector (SATAIII_1)
39	SATA3 Connector (SATAIII_0)
40	BMC SMB Header (BMC_SMB1)
41	BMC SMB Header (BMC_SMB3)
42	2 x 240-pin DDR3 DIMM Slots
	(DDR3_A2, DDR3_B2, White)
43	2 x 240-pin DDR3 DIMM Slots
	(DDR3_H1, DDR3_G1, Blue)
44	Rear Fan Connector (REAR_FAN2)
45	Rear Fan Connector (REAR_FAN1)

1.4 I/O Panel

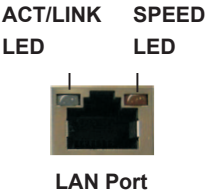
EP2C602-2T2OS6/D16



1 Serial Port (COM1)
2 Management LAN Port (MNG_LAN)*
3 10G SFP+ LAN Port (LAN4)**
4 10G SFP+ LAN Port (LAN3)**
5 10G LAN Port (LAN2)
6 10G LAN Port (LAN1)
7 USB 2.0 Ports (USB_3_4)
8 D-Sub Port (VGA1)
9 USB 2.0 Ports (USB_1_2)

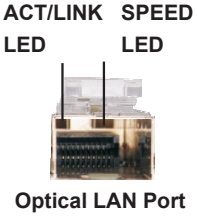
* There are two LEDs on each LAN port. Please refer to the table below for the LAN port LED indications.

LAN Port LED Indications			
Activity/Link LED		SPEED LED	
Status	Description	Status	Description
Off	No Link	Off	10Mbps connection
Blinking	Data Activity	Orange	100Mbps connection
On	Cable Connection	Green	1Gbps connection

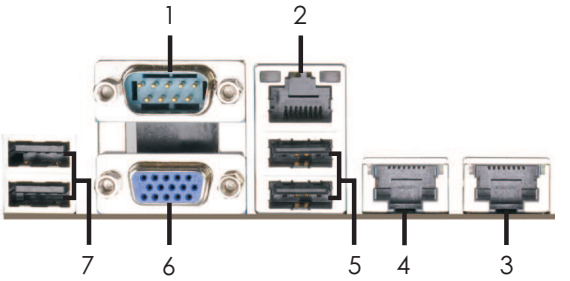


** There are two LEDs on each Optical LAN port. Please refer to the table below for the Optical LAN port LED indications.

Optical LAN Port LED Indications			
Activity/Link LED		SPEED LED	
Status	Description	Status	Description
Off	No Link	Off	No Link
Blinking	Data Activity	Green	10Gbps connection
On	Cable Connection		



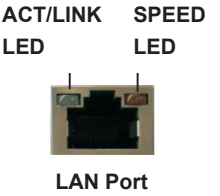
EP2C602-2TS6/D16



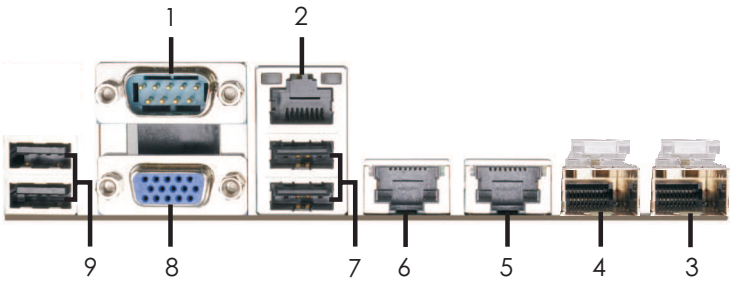
1 **Serial Port (COM1)**
2 **Management LAN Port (MNG_LAN)***
3 **10G LAN Port (LAN2)**
4 **10G LAN Port (LAN1)**
5 **USB 2.0 Ports (USB_3_4)**
6 **D-Sub Port (VGA1)**
7 **USB 2.0 Ports (USB_1_2)**

* There are two LEDs on each LAN port. Please refer to the table below for the LAN port LED indications.

LAN Port LED Indications			
Activity/Link LED		**SPEED LED**	
Status	Description	Status	Description
Off	No Link	Off	10Mbps connection
Blinking	Data Activity	Orange	100Mbps connection
On	Cable Connection	Green	1Gbps connection



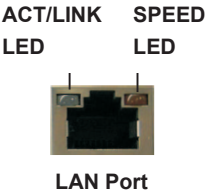
EP2C602-2L+2OS6/D16



1 **Serial Port (COM1)**
2 **Management LAN Port (MNG_LAN)***
3 **10G SFP+ LAN Port (LAN4)****
4 **10G SFP+ LAN Port (LAN3)****
5 **1G LAN Port (LAN2)**
6 **1G LAN Port (LAN1)**
7 **USB 2.0 Ports (USB_3_4)**
8 **D-Sub Port (VGA1)**
9 **USB 2.0 Ports (USB_1_2)**

* There are two LEDs on each LAN port. Please refer to the table below for the LAN port LED indications.

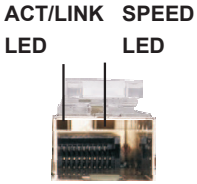
LAN Port LED Indications			
Activity/Link LED		**SPEED LED**	
Status	Description	Status	Description
Off	No Link	Off	10Mbps connection
Blinking	Data Activity	Orange	100Mbps connection
On	Cable Connection	Green	1Gbps connection



LAN Port

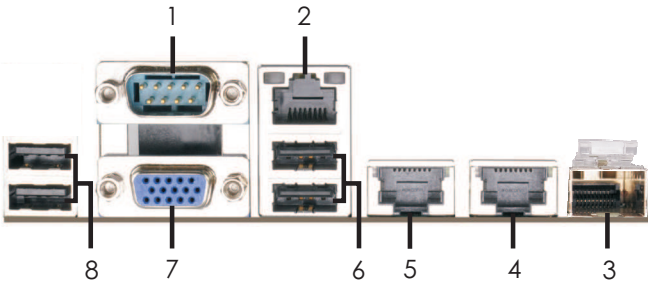
** There are two LEDs on each Optical LAN port. Please refer to the table below for the Optical LAN port LED indications.

Optical LAN Port LED Indications			
Activity/Link LED		**SPEED LED**	
Status	Description	Status	Description
Off	No Link	Off	No Link
Blinking	Data Activity	Green	10Gbps connection
On	Cable Connection		



Optical LAN Port

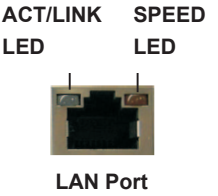
EP2C602-2L+OS6/D16



1 Serial Port (COM1)
2 Management LAN Port (MNG_LAN)*
3 10G SFP+ LAN Port (LAN3)**
4 1G LAN Port (LAN2)
5 1G LAN Port (LAN1)
6 USB 2.0 Ports (USB_3_4)
7 D-Sub Port (VGA1)
8 USB 2.0 Ports (USB_1_2)

* There are two LEDs on each LAN port. Please refer to the table below for the LAN port LED indications.

LAN Port LED Indications			
Activity/Link LED		SPEED LED	
Status	Description	Status	Description
Off	No Link	Off	10Mbps connection
Blinking	Data Activity	Orange	100Mbps connection
On	Cable Connection	Green	1Gbps connection



LAN Port

** There are two LEDs on each Optical LAN port. Please refer to the table below for the Optical LAN port LED indications.

Optical LAN Port LED Indications			
Activity/Link LED		SPEED LED	
Status	Description	Status	Description
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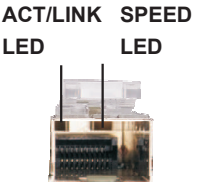
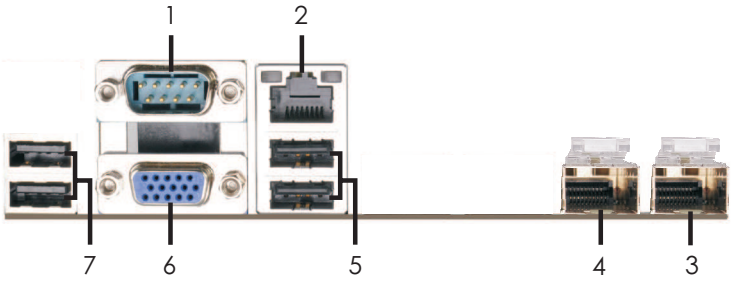
Blinking	Data Activity	Green	10Gbps connection
On	Cable Connection		



Optical LAN Port

EP2C602-2OS6/D16



1 Serial Port (COM1)
2 Management LAN Port (MNG_LAN)*
3 10G SFP+ LAN Port (LAN4)**
4 10G SFP+ LAN Port (LAN3)**
5 USB 2.0 Ports (USB_3_4)
6 D-Sub Port (VGA1)
7 USB 2.0 Ports (USB_1_2)

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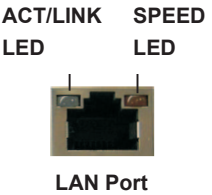

LAN Port

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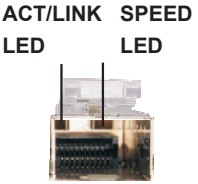
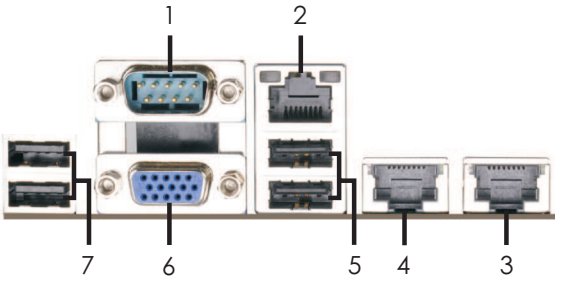
Optical LAN Port LED Indications			
Activity/Link LED		SPEED LED	
Status	Description	Status	Description
Off	No Link	Off	No Link
Blinking	Data Activity	Green	10Gbps connection
On	Cable Connection		



Optical LAN Port

EP2C602-2T/D16



1 **Serial Port (COM1)**
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3 **10G LAN Port (LAN2)**
4 **10G LAN Port (LAN1)**
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6 **D-Sub Port (VGA1)**
7 **USB 2.0 Ports (USB_1_2)**

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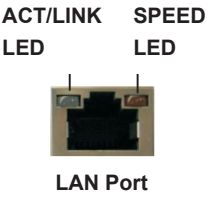
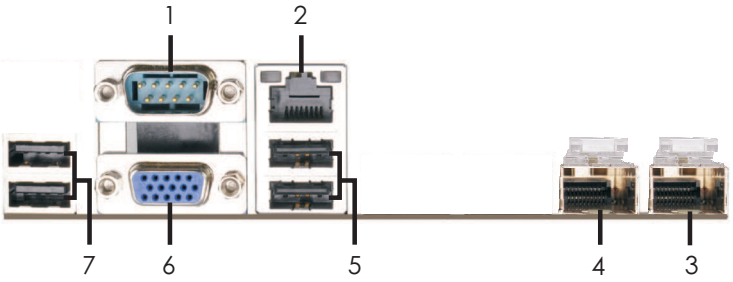


EP2C602-2O/D16



1 **Serial Port (COM1)**
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3 **10G SFP+ LAN Port (LAN4)****
4 **10G SFP+ LAN Port (LAN3)****
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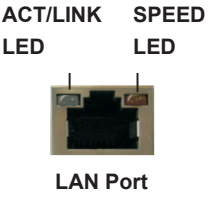

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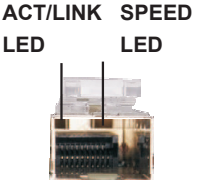
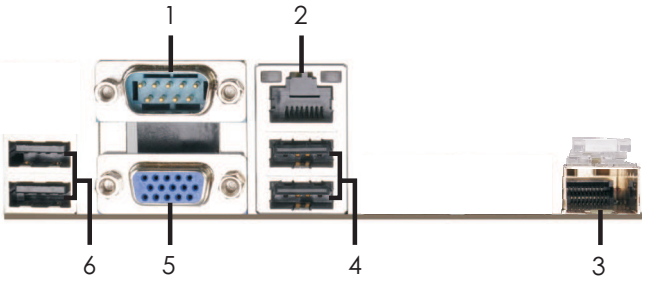
Blinking	Data Activity	Green	10Gbps connection
On	Cable Connection		



Optical LAN Port

EP2C602-O/D16



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3 **10G SFP+ LAN Port (LAN3)****
4 **USB 2.0 Ports (USB_3_4)**
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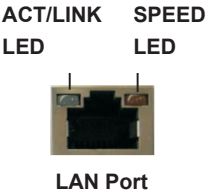

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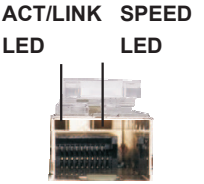
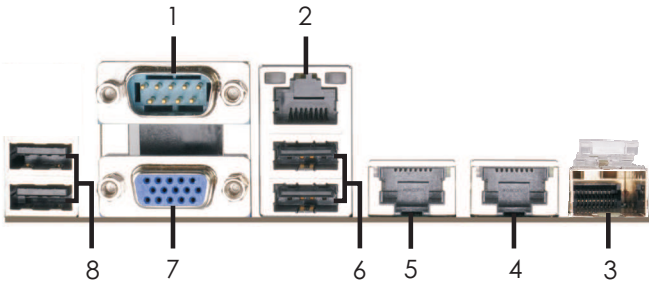


Optical LAN Port

EP2C602-2L+O/D16



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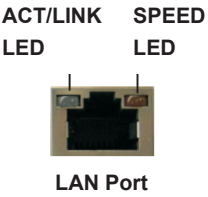

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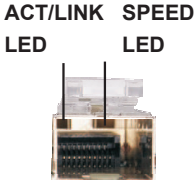
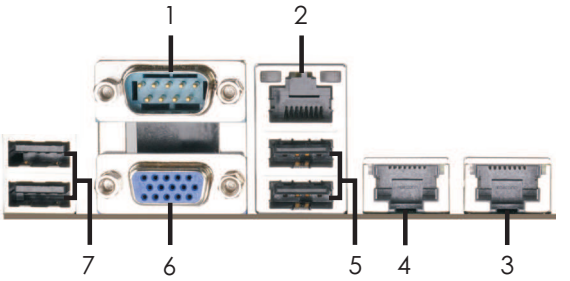


Optical LAN Port

EP2C602-2L+/D16



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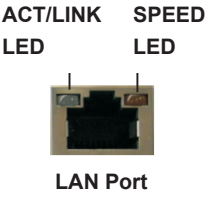
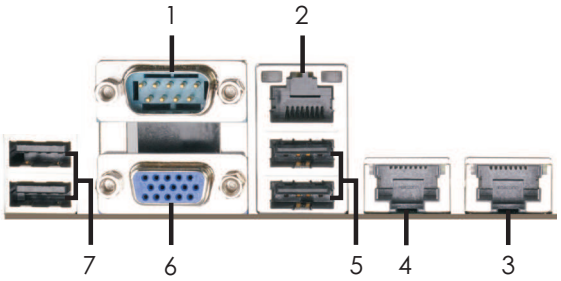


EP2C602-S6/D16



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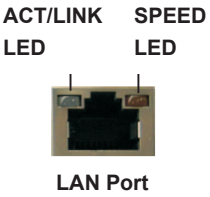
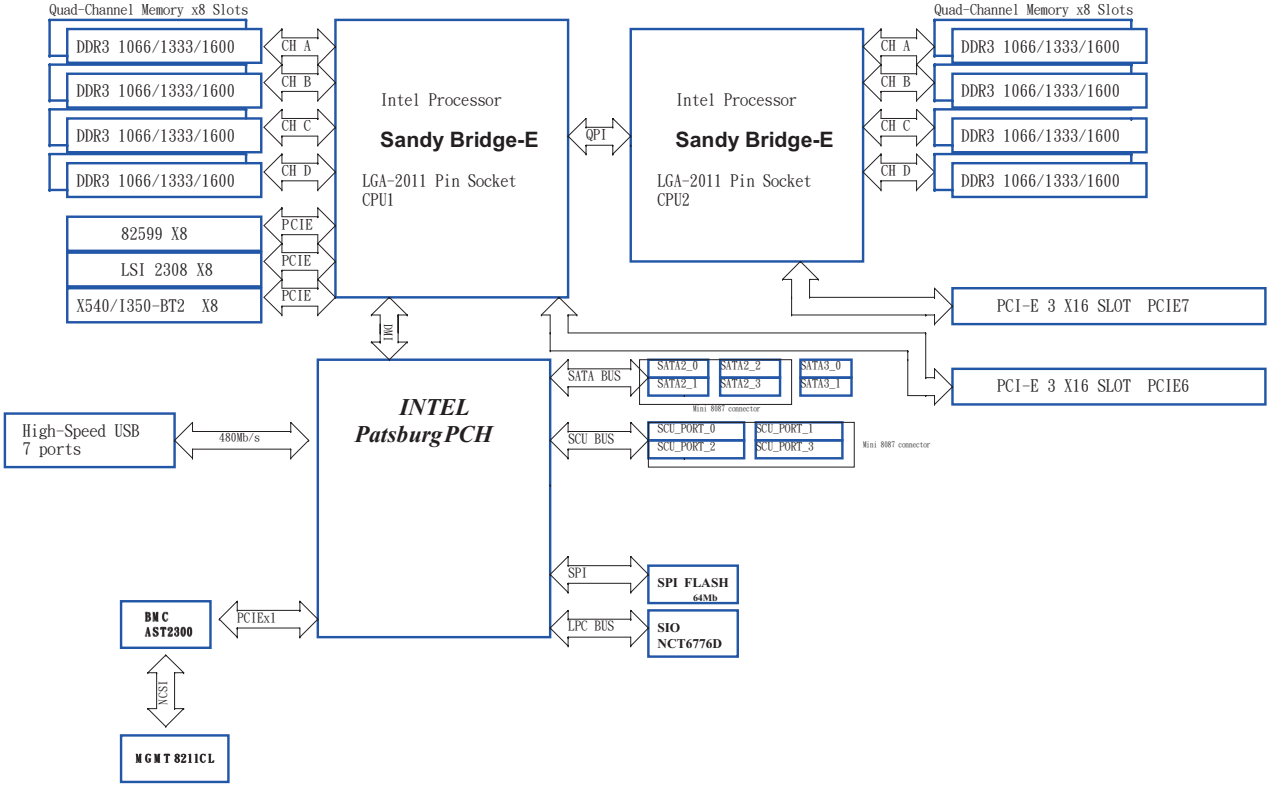



Quad-Channel Memory x8 Slots
DDR3 1066/1333/1600
DDR3 1066/1333/1600
DDR3 1066/1333/1600
DDR3 1066/1333/1600
CH A
CH B
CH C
CH D
Intel Processor
Sandy Bridge-E
LGA-2011 Pin Socket
CPU1
QPI
Intel Processor
Sandy Bridge-E
LGA-2011 Pin Socket
CPU2
Quad-Channel Memory x8 Slots
DDR3 1066/1333/1600
DDR3 1066/1333/1600
DDR3 1066/1333/1600
DDR3 1066/1333/1600
82599 X8
LSI 2308 X8
X540/I350-BT2 X8
PCIE
PCIE
PCIE
DMI
PCI-E 3 X16 SLOT PCIE7
PCI-E 3 X16 SLOT PCIE6
INTEL
Patsburg PCH
SATA BUS
SATA2_0
SATA2_1
SATA2_2
SATA2_3
SATA3_0
SATA3_1
Mini 8087 connector
SCU BUS
SCU_PORT_0
SCU_PORT_1
SCU_PORT_2
SCU_PORT_3
Mini 8087 connector
High-Speed USB
7 ports
480Mb/s
SPI
SPI FLASH
64Mb
LPC BUS
SIO
NCT6776D
BMC
AST2300
PCIEx1
NCSI
NGMT 8211CL

Chapter 2: Installation

Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.

EP2C602 Series are dual socket motherboards that support Intel® Xeon® E5-2400/1400 Series Processors. Please install a primary processor (BootStrap Processor) into "CPU_BSP1" socket and then install a non-Primary Processor (Application Processors) into "CPU_AP1" socket. *For a single CPU, please install it into "CPU_BSP1" socket (framed by a square).

2.1 Pre-installation Precautions

Take note of the following precautions before you install motherboard components or change any motherboard settings.

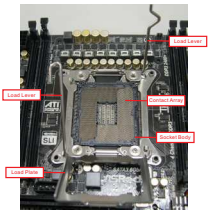
1. Make sure to unplug the power cord before installing or removing the motherboard. Failure to do so may cause physical injuries to you and damages to motherboard components.
2. In order to avoid damage from static electricity to the motherboard's components, NEVER place your motherboard directly on a carpet. Also remember to use a grounded wrist strap or touch a safety grounded object before you handle the components.
3. Hold components by the edges and do not touch the ICs.
4. Whenever you uninstall any components, place them on a grounded anti-static pad or in the bag that comes with the components.
5. When placing screws to secure the motherboard to the chassis, please do not over-tighten the screws! Doing so may damage the motherboard.

2.2 Screw Holes

Place screws into the holes indicated by circles to secure the motherboard to the chassis.

2.3 CPU Installation

For the installation of Intel 2011-Pin CPU, please follow the steps below.



2011-Pin Socket Overview

Before you insert the 2011-Pin CPU into the socket, please check if the CPU surface is unclean or if there are any bent pins in the socket. Do not force to insert the CPU into the socket if above situation is found. Otherwise, the CPU will be seriously damaged.

Step 1. Open the socket:

Step 1-1. Disengage the left lever by pressing it down and sliding it out of the hook.

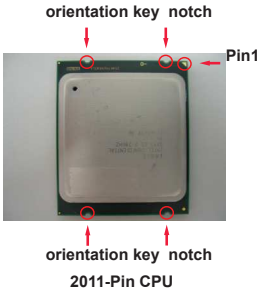
Step 1-2. Disengage the right lever by pressing it down and sliding it out of the hook.

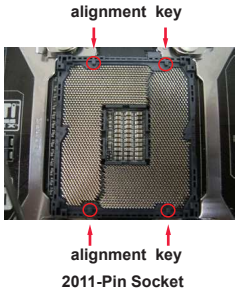
Step 1-3. Keep the right lever positioned at about 90 degrees in order to flip up the load plate.

Step 2. Insert the 2011-Pin CPU:

Step 2-1. Hold the CPU by the edge with the triangle mark(Pin 1) on your upper right corner.

Step 2-2. Locate Pin1 and the two orientation key notches.





For proper inserting, please ensure to match the four orientation key notches of the CPU with the four alignment keys of the socket.

Step 2-3. Carefully place the CPU into the socket by using a purely vertical motion.

Step 2-4. Verify that the CPU is within the socket and properly mated to the orient keys.

Step 3. Close the socket:

Step 3-1. Flip the load plate onto the IHS, then the cover will automatically come off by itself.

The cover must be placed if returning the motherboard for after service.

Step 3-2. Press down the right load lever, and secure it with the load plate tab under the retention tab.

Step 3-3. Press down the left load lever, and secure it with the load plate tab under the retention tab.

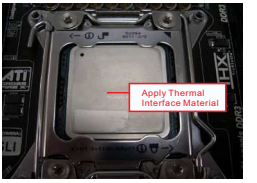
2.4 Installation of CPU Fan and Heatsink

This motherboard is equipped with 2011-Pin socket that supports Intel 2011-Pin CPU. Please adopt the type of heatsink and cooling fan compliant with Intel 2011-Pin CPU to dissipate heat. Before you installed the heatsink, you need to spray thermal interface material between the CPU and the heatsink to improve heat dissipation. Ensure that the CPU and the heatsink are securely fastened and in good contact with each other. Then connect the CPU fan to the CPU_FAN connector.

For proper installation, please kindly refer to the instruction manuals of your CPU fan and heatsink.

Below is an example to illustrate the installation of the heatsink for 2011-Pin CPU.

Step 1. Apply thermal interface material onto center of IHS on the socket surface.



Step 2. Place the heatsink onto the socket. Ensure fan cables are oriented on side closest to the CPU fan connector on the motherboard.

Step 3. Align screws with the motherboard's holes.

Step 4. Use a screw driver to install the screws.

If you don't fasten the screws, the heatsink cannot be secured on the motherboard.

Step 5. Connect fan header with the CPU fan connector on the motherboard.

Step 6. Secure excess cable with tie-wrap to ensure the cable does not interfere with fan operation or contact other components.

2.5 Installation of Memory Modules (DIMM)

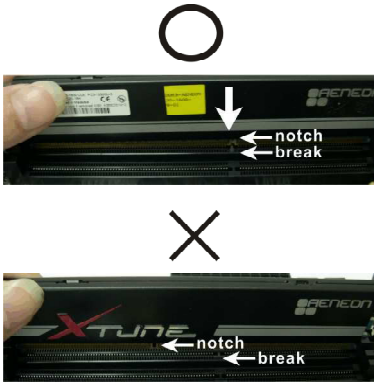
This motherboard provides four 240-pin DDR3 (Double Data Rate 3) DIMM slots, and supports Dual Channel Memory Technology. For dual channel configuration, you always need to install two identical (the same brand, speed, size and chip-type) memory modules in the DDR3 DIMM slots to activate Dual Channel Memory Technology. Otherwise, it will operate at single channel mode.

1. It is not allowed to install a DDR or DDR2 memory module into a DDR3 slot; otherwise, this motherboard and DIMM may be damaged.
2. If you install only one memory module or two non identical memory modules, it is unable to activate Dual Channel Memory Technology.
3. Some DDR3 1GB double-sided DIMMs with 16 chips may not work on this motherboard. It is not recommended to install them on this motherboard.
4. A single memory module should be installed in the blue socket.
5. If you install only one CPU (CPU_BSP1) on the motherboard, make sure to install DIMMs into DDR3_A, DDR3_B, DDR3_C, or DDR3_D slot(s).

Installing a DIMM

Please make sure to disconnect the power supply before adding or removing DIMMs or system components.

Step 1. Unlock a DIMM slot by pressing the retaining clips outward.
Step 2. Align a DIMM on the slot such that the notch on the DIMM matches the break on the slot.



The DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the DIMM if you force the DIMM into the slot at incorrect orientation.

Step 3. Firmly insert the DIMM into the slot until the retaining clips at both ends fully snap back in place and the DIMM is properly seated.

2.6 Expansion Slots (PCI Express Slots)

There are 2 PCI Express slots on the motherboard.

PCIE slots:

PCIE6 and PCIE7 (PCIE 3.0 x16 slot) are used for PCI Express x16 lane width graphics cards.

Please note that PCIE6 is available ONLY when the first CPU (CPU_BSP1) is installed, and PCIE7 is available ONLY when the second CPU (CPU_AP1) is installed.

Installing an expansion card

Step 1. Before installing an expansion card, please make sure that the power supply is switched off or the power cord is unplugged. Please read the documentation of the expansion card and make necessary hardware settings for the card before you start the installation.

Step 2. Remove the system unit cover (if your motherboard is already installed in a chassis).

Step 3. Remove the bracket facing the slot that you intend to use. Keep the screws for later use.

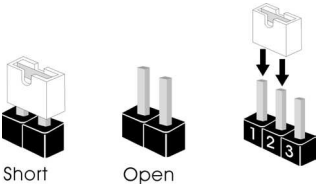
Step 4. Align the card connector with the slot and press firmly until the card is completely seated on the slot.

Step 5. Fasten the card to the chassis with screws.

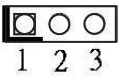
Step 6. Replace the system cover.

2.7 Jumpers Setup

The illustration shows how jumpers are setup. When the jumper cap is placed on pins, the jumper is “Short”. If no jumper cap is placed on pins, the jumper is “Open”. The illustration shows a 3-pin jumper whose pin1 and pin2 are “Short” when jumper cap is placed on these 2 pins.

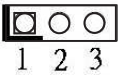


ME Recovery Jumper
(3-pin ME_RECOVERY1)



1-2:
Default
2-3:
ME recovery mode

-12V Switch Header
(3-pin 12V_SW1)



1-2:
Default
2-3:
PSU (-12V)

2.8 Onboard Headers and Connectors

Onboard headers and connectors are NOT jumpers. Do NOT place jumper caps over these headers and connectors. Placing jumper caps over the headers and connectors will cause permanent damage to the motherboard!

Serial ATA2 Connector
(SATAII_PORT_0)

This Serial ATA2 (SATA2) connector supports SATA data cables for internal storage devices. The current SATA2 interface allows up to 3.0 Gb/s data transfer rate.

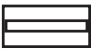
Serial ATA3 Connectors
(SATAIII_0)
(SATAIII_1)

These two Serial ATA3 (SATA3) connectors support SATA data cables for internal storage devices. The current SATA3 interface allows up to 6.0 Gb/s data transfer rate.

SAS Connectors
(For EP2C602-2T2OS6/D16 / EP2C602-2TS6/D16 / EP2C602-2OS6/D16 / EP2C602-S6/D16)
(LSI_SAS_0)
(LSI_SAS_1)

These two SAS connectors support SAS/SATA data cables for internal storage devices. The current SAS2/SATA3 interface allows up to 6.0 Gb/s data transfer rate. For connecting SAS HDDs, please contact SAS data cable dealers.

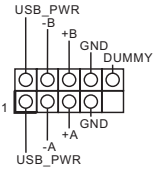
SCU Connector
(SCU_PORT_0)



SCU_PORT_0

This SCU connector supports SAS/SATA data cables for internal storage devices. The current SAS2/SATA3 interface allows up to 6.0 Gb/s data transfer rate. For connecting SAS HDDs, please contact SAS data cable dealers.

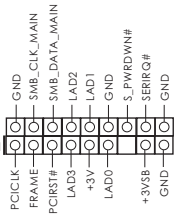
USB 2.0 Header and Port
(9-pin USB_5_6)



(USB_8)

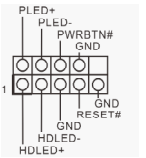
Besides four default USB 2.0 ports on the I/O panel, there is one USB 2.0 header and one port on this motherboard. This USB 2.0 header can support two USB 2.0 ports.

TPM Header
(17-pin TPM1)



This connector supports Trusted Platform Module (TPM) system, which can securely store keys, digital certificates, passwords, and data. A TPM system also helps enhance network security, protects digital identities, and ensures platform integrity.

System Panel Header
(9-pin PANEL1)



This header accommodates several system front panel functions.

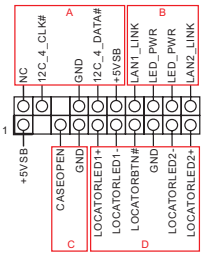
Connect the power switch, reset switch and system status indicator on the chassis to this header according to the pin assignments below. Note the positive and negative pins before connecting the cables.

PWRBTN (Power Switch):
Connect to the power switch on the chassis front panel. You may configure the way to turn off your system using the power switch.
RESET (Reset Switch):
Connect to the reset switch on the chassis front panel. Press the reset switch to restart the computer if the computer freezes and fails to perform a normal restart.
PLED (System Power LED):
Connect to the power status indicator on the chassis front panel. The LED is on when the system is operating. The LED keeps blinking when the sys-tem is in S1/S3 sleep state. The LED is off when the system is in S4 sleep state or powered off (S5).
HDLED (Hard Drive Activity LED):
Connect to the hard drive activity LED on the chassis front panel. The LED is on when the hard drive is reading or writing data.

The front panel design may differ by chassis. A front panel module mainly consists of power switch, reset switch, power LED, hard drive activity LED, speaker and etc. When connecting your chassis front panel module to this header, make sure the wire assignments and the pin assignments are matched correctly.

Auxiliary Panel Header

(18-pin AUX_PANEL1)



This header supports multiple functions on the front panel, including front panel SMB, internet status indicator and chassis intrusion pin.

A. Front panel SMBus connecting pin (6-pin FPSMB)

This header allows you to connect SMBus (System Management Bus) equipment. It can be used for communication between peripheral equipment in the system, which has slower transmission rates, and power management equipment.

B. Internet status indicator (2-pin LAN1_LED, LAN2_LED)

These two 2-pin headers allow you to use the Gigabit internet indicator cable to connect to the LAN status indicator. When this indicator flickers, it means that the internet is properly connected.

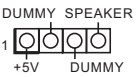
C. Chassis intrusion pin (2-pin CHASSIS)

This header is provided for host computer chassis with chassis intrusion detection designs. In addition, it must also work with external detection equipment, such as a chassis intrusion detection sensor or a microswitch. When this function is activated, if any chassis component movement occurs, the sensor will immediately detect it and send a signal to this header, and the system will then record this chassis intrusion event. The default setting is set to the CASEOPEN and GND pin; this function is off.

D. Locator LED (6-pin LOCATOR)

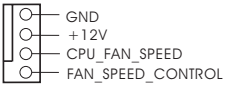
This header is for the locator switch and LED on the front panel.

Speaker Header
(4-pin SPEAKER1)

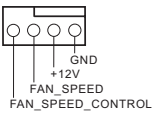


Please connect the speaker to this header.

Front and Rear
Fan Connectors
(4-pin FRNT_FAN1)
(4-pin FRNT_FAN2)
(4-pin FRNT_FAN3)
(4-pin FRNT_FAN4)

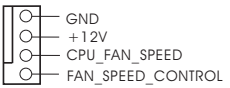


(4-pin REAR_FAN1)
(4-pin REAR_FAN2)



Please connect the fan cables to the fan connectors and match the black wire to the ground pin. All fans supports Fan Control.

CPU Fan Connectors
(4-pin CPU1_FAN)
(4-pin CPU2_FAN)



Please connect the CPU fan cable to the connector and match the black wire to the ground pin.

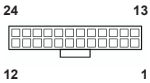
Though this motherboard provides a 4-Pin CPU fan (Quiet Fan) connector, 3-Pin CPU fans can still work successfully even without the fan speed control function. If you plan to connect a 3-Pin CPU fan to the CPU fan connector on this motherboard, please connect it to Pin 1-3.

Pin 1-3 Connected

3-Pin Fan Installation

ATX Power Connector

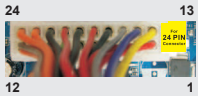
(24-pin ATXPWR1)



Please connect an ATX power supply to this connector.

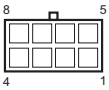
Though this motherboard provides a 24-pin ATX power connector, it can still work if you adopt a traditional 20-pin ATX power supply. To use a 20-pin ATX power supply, please plug your power supply along Pin 1 and Pin 13.

20-Pin ATX Power Supply Installation

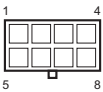


ATX 12V Power Connectors

(8-pin ATX12V1)



(8-pin ATX12V_1)

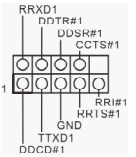


Please connect an ATX 12V power supply to this connector.

Though this motherboard provides an 8-pin ATX 12V power connector, it can still work if you adopt a traditional 4-pin ATX 12V power supply. To use a 4-pin ATX power supply, please plug your power supply along Pin 1 and Pin 5.

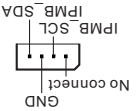
4-Pin ATX 12V Power Supply Installation

Serial port Header
(9-pin COM2)



This COM2 header supports a serial port module.

Intelligent Platform Management Bus header
(4-pin IPMB_1)

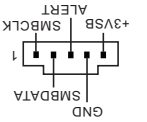


This 4-pin connector is used to provide a cabled baseboard or front panel connection for value added features and 3rd-party add-in cards, such as Emergency Management cards, that provide management features using the IPMB.

Thermal Sensor header
(3-pin TR1)

Please connect the thermal sensor cable to either pin 1-2 or pin 2-3 and the other end to the device which you wish to monitor its temperature.

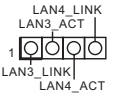
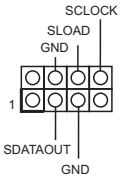
PSU SMBus
(5-pin PSU_SMB1)



PSU SMBus monitors the status of the power supply, fan and system temperature.

Non Maskable Interrupt Button Header
(2-pin NMI_BTN1)

Please connect a NMI device to this header.

Front Lan LED Connector (4-pin FRONT_LED_LAN34)		This 4-pin connector is used for the front LAN status indicator.
Serial General Purpose Input/Output Header (7-pin SATA_SGPIO1)		This header supports Serial Link interface for onboard SATA connections.
BMC SMB Header (5-pin BMC_SMB_1) (5-pin BMC_SMB_3)		This header is used for the SM BUS devices.

2.9 Driver Installation Guide

To install the drivers to your system, please insert the support CD to your optical drive first. Then, the drivers compatible to your system can be auto-detected and listed on the support CD driver page. Please follow the order from top to bottom to install those required drivers. Therefore, the drivers you install can work properly.

Chapter 3: UEFI SETUP UTILITY

3.1 Introduction

This section explains how to use the UEFI SETUP UTILITY to configure your system. The UEFI chip on the motherboard stores the UEFI SETUP UTILITY. You may run the UEFI SETUP UTILITY when you start up the computer. Please press <F2> or <Del> during the Power-On-Self-Test (POST) to enter the UEFI SETUP UTILITY, otherawise, POST will continue with its test routines.

If you wish to enter the UEFI SETUP UTILITY after POST, restart the system by pressing <Ctl> + <Alt> + <Delete>, or by pressing the reset button on the system chassis. You may also restart by turning the system off and then back on.

Because the UEFI software is constantly being updated, the following UEFI setup screens and descriptions are for reference purpose only, and they may not exactly match what you see on your screen.

3.1.1 UEFI Menu Bar

The top of the screen has a menu bar with the following selections:

Main	For setting system time/date information
Advanced	For advanced system configurations
H/W Monitor	Displays current hardware status
Boot	For configuring boot settings and boot priority
Security	For security settings
Save & Exit	Exit the current screen or the UEFI Setup Utility
Server Mgmt	For managing the server
Event Logs	For event log configuration

3.1.2 Navigation Keys

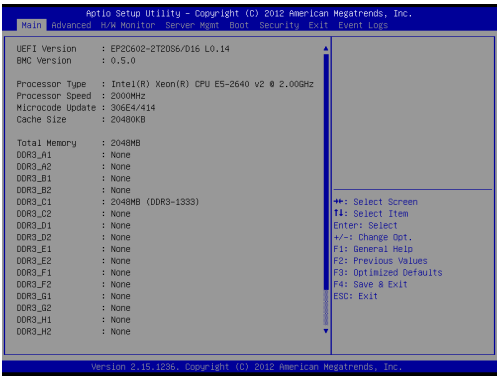
Use < ← > key or < → > key to choose among the selections on the menu bar, and use < ↑ > key or < ↓ > key to move the cursor up or down to select items, then press <Enter> to get into the sub screen. You can also use the mouse to click your required item.

Please check the following table for the descriptions of each navigation key.

Navigation Key(s)	Function Description
+ / -	To change option for the selected items
<Tab>	Switch to next function
<PGUP>	Go to the previous page
<PGDN>	Go to the next page
<HOME>	Go to the top of the screen
<END>	Go to the bottom of the screen
<F1>	To display the General Help Screen
<F7>	Discard changes and exit the SETUP UTILITY
<F9>	Load optimal default values for all the settings
<F10>	Save changes and exit the SETUP UTILITY
<F12>	Print screen
<ESC>	Jump to the Exit Screen or exit the current screen

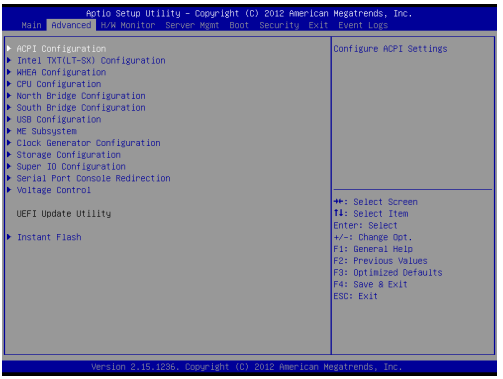
3.2 Main Screen

When you enter the UEFI SETUP UTILITY, the Main screen will appear and display the system overview.


Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
Main Advanced H/W Monitor Server Mgmt Boot Security Exit Event Logs
UEFI Version : EP2C602-2T2OS6/D16 L0.14
BMC Version : 0.5.0
Processor Type : Intel(R) Xeon(R) CPU E5-2640 v2 @ 2.00GHz
Processor Speed : 2000MHz
Microcode Update : 306E4/414
Cache Size : 20480KB
Total Memory : 2048MB
DDR3_A1 : None
DDR3_A2 : None
DDR3_B1 : None
DDR3_B2 : None
DDR3_C1 : 2048MB (DDR3-1333)
DDR3_C2 : None
DDR3_D1 : None
DDR3_D2 : None
DDR3_E1 : None
DDR3_E2 : None
DDR3_F1 : None
DDR3_F2 : None
DDR3_G1 : None
DDR3_G2 : None
DDR3_H1 : None
DDR3_H2 : None
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.15.1236. Copyright (C) 2012 American Megatrends, Inc.

3.3 Advanced Screen

In this section, you may set the configurations for the following items: ACPI Configuration, Intel(LT-SX) TXT Configuration, WHEA Configuration, CPU Configuration, North Bridge Configuration, South Bridge Configuration, USB Configuration, ME Subsystem, Clock Generator Configuration, Storage Configuration,Super IO Configuration, Serial Port Console Redirection and Voltage Control.

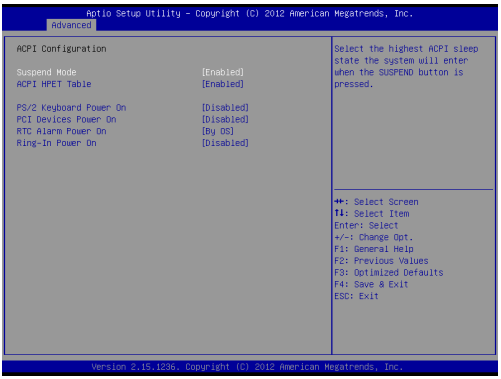


Setting wrong values in this section may cause the system to malfunction.

Instant Flash

Instant Flash is a UEFI flash utility embedded in Flash ROM. This convenient UEFI update tool allows you to update system UEFI without entering operating systems first like MS-DOS or Windows®. Just save the new UEFI file to your USB flash drive, floppy disk or hard drive and launch this tool, then you can update your UEFI only in a few clicks without preparing an additional floppy diskette or other complicated flash utility. Please be noted that the USB flash drive or hard drive must use FAT32/16/12 file system. If you execute Instant Flash utility, the utility will show the UEFI files and their respective information. Select the proper UEFI file to update your UEFI, and reboot your system after the UEFI update process is completed.

3.3.1 ACPI Configuration


Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
Advanced
ACPI Configuration
Suspend Mode [Enabled]
ACPI HPET Table [Enabled]
PS/2 Keyboard Power On [Disabled]
PCI Devices Power On [Disabled]
RTC Alarm Power On [By OS]
Ring-In Power On [Disabled]
Select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.15.1236. Copyright (C) 2012 American Megatrends, Inc.

Suspend Mode

Use this item to enable or disable the highest ACPI Sleep state (S1). If enabled, the system enters S1 level when the SUSPEND button is pressed.

ACPI HPET Table

Use this item to enable or disable ACPI HPET Table. The default value is [Enabled].

PCI Devices Power On

Use this item to enable or disable PCI devices to turn on the system from the power-soft-off mode.

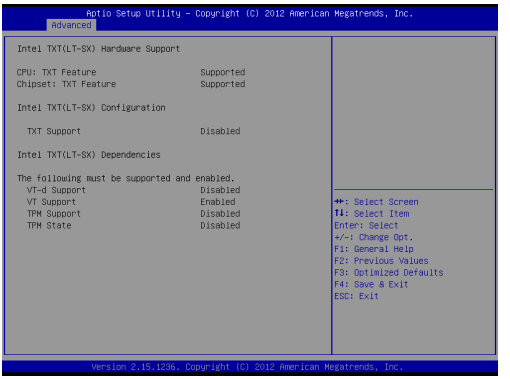
RTC Alarm Power On

Use this item to enable or disable RTC (Real Time Clock) to power on the system.

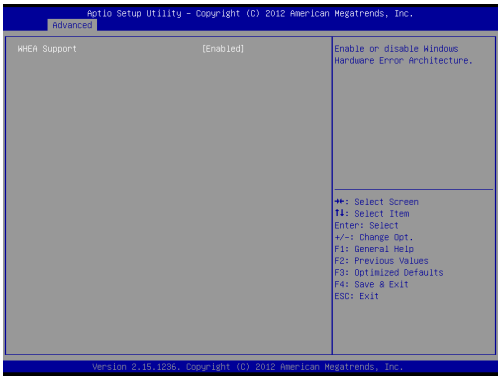
Ring-In Power On

Use this item to enable or disable Ring-In signals to turn on the system from the power-soft-off mode.

3.3.2 Intel(LT-SX) TXT Configuration



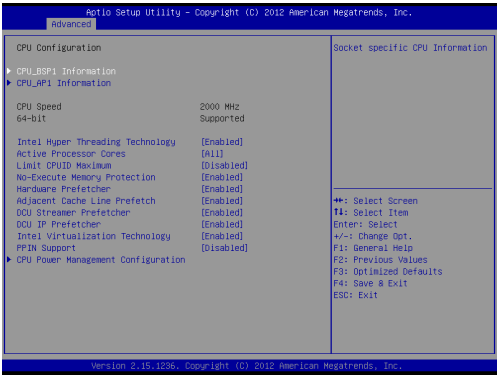
3.3.3 WHEA Configuration



WHEA Support

Use this option to enable or disable Windows Hardware Error Architecture. The default value is [Enabled].

3.3.4 CPU Configuration



CPU_BSP1 Information

Display information regarding the primary processor (BootStrap Processor).

CPU_AP1 Information

Display information regarding the non-primary processor (Application Processors).

Intel Hyper Threading Technology

To enable this feature, a computer system with an Intel processor that supports Hyper-Threading technology and an operating system that includes optimization for this technology is required. This option will be hidden if the installed CPU does not support Hyper-Threading technology.

Active Processor Cores

Use this item to select the number of cores to enable in each processor package. The default value is [All].

Limit CPUID Maximum

This function allows you to limit CPUID maximum value. Unless the OS is Windows® NT, disable this function.

No-Execute Memory Protection

No-Execution (NX) Memory Protection Technology is an enhancement to the IA-32 Intel Architecture. An IA-32 processor with “No Execute (NX) Memory Protection” can prevent data pages from being used by malicious software to execute codes. This option will be hidden if the current CPU does not support No-Excute Memory Protection.

Hardware Prefetcher

Use this turn on/off the MLC streamer prefetcher.

Adjacent Cache Line Prefetch

Use this to turn on/off prefetching of adjacent cache lines.

DCU Streamer Prefetcher

If enabled, the DCU (data cache unit) Streamer Prefetcher prefetches the next L1 Data line based upon multiple loads in same cache line. It is recommended to enable this option to enhance data processing capacity.

DCU IP Prefetcher

If enabled, the DCU (data cache unit) IP (Instruction Pointer) Prefetcher predict what memory addresses are going to be used by the program and deliver that data just in time.

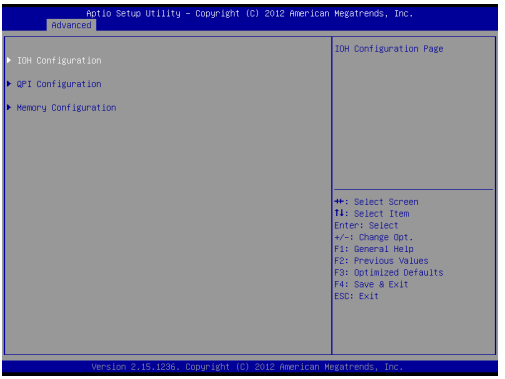
Intel Virtualization Technology

When this option is set to [Enabled], a VMM (Virtual Machine Architecture) can utilize the additional hardware capabilities provided by Vanderpool Technology. This option will be hidden if the installed CPU does not support Intel Virtualization Technology.

CPU Power Management

Use this to configure CPU Power Management.

3.3.5 North Bridge Configuration



IOH (I/O hub) Configuration

Intel® VT-d

Use this to enable/disable Intel® Virtualization Technology for the Directed I/O.

Intel® I/OAT

Use this to enable/disable Intel® I/O AccelearationTechnology.

Primary Graphics Adapter

This allows you to select a graphics device as the primary display. The default value is [PCI Express].

Onboard VGA

Enable or disable the onboard VGA.

Onboard LAN1 & LAN2

This allows you to enable or disable onboard LAN1 & LAN2.

Onboard LAN1 & LAN2 Link Speed

This allows you to select LAN1 & LAN2 Link Speed.

Onboard LAN3 & LAN4

This allows you to enable or disable onboard LAN3 & LAN4.

Onboard LAN3 & LAN4 Link Speed

This allows you to select LAN3 & LAN4 Link Speed.

LSI 2308 Link Speed

This allows you to select LSI 2308 Link Speed.

PCIE6 Link Speed

This allows you to select PCIE6 Link Speed.

PCIE7 Link Speed

This allows you to select PCIE7 Link Speed.

QPI (Intel Quickpath Interconnect) Configuration

Isoc

Use this to enable/disable Isoc. It is recommended to select [Enabled].

QPI Link Speed Mode

This allows you to select QPI Link Speed Mode. It is recommended to select [Auto].

QPI Link Frequency Select

This allows you to select QPI Link Frequency.

Memory Configuration

Memory Mode

Select the mode for memory initialization.

[Independent]:

Independent channel mode.

[Mirroring]:

The memory subsystem writes identical data to two channels simultaneously. Identical memory modules should be installed in the two channels closest to the processor.

[Lock Step]:

The two channels closest to the processor are combined to form a single channel. Memory modules must be identical in size, speed, and technology in corresponding slots.

[Sparing]:

This mode occurs when on-demand inactive memory is automatically activated by the system to temporarily replace failed memory until a service action can be performed.

DRAM RAPL BWLIMIT

This item sets the limits on the average power consumption and the bandwidth of a DRAM module.The options are Disabled, 0, 1(Intel recommended value), 8 and 16.

Perform and DFX devices

This item can set the Perfmon and DFX devices hidden or unhidden.

DRAM RAPL (Running Average Power Limit) Mode

RAPL (Running Average Power Limit) provides mechanisms to enforce power consumption limits on supported processors. The default is [DRAM RAPL Mode 1].

Numa

Enable or disable the support of Non-Uniform Memory Access.

MPST Support

Enable or disable the support of Memory Power StateTable.

DRAM Frequency

If [Auto] is selected, the motherboard will detect the memory module(s) inserted and assign the appropriate frequency auto matically.

Channel Interleaving

It allows you to enable Channel Memory Interleaving. The default value is [Auto].

Rank Interleaving

It allows you to select a rank memory interleaving method. The default value is [Auto].

Patrol Scrub

Patrol Scrub is a background activity initiated by the processor to seek out and fix memory errors. The default value is [Enabled].

Demand Scrub

Fix the error when the CPU or I/O issues a demand-read com mand, and the read data from memory turns out to be a correct able error. The default value is [Disabled].

Data Scrambling

Enable this feature to ensure data security and integrity.

Thermal Throttling

Use this automatic memory throttling feature to reduce power consumption. The default value is [CLTT] (Closed Loop Thermal Throttling).

DIMM Information

Display DIMM information.

3.3.6 South Bridge Configuration

Restore on AC/Power Loss

This allows you to set the power state after an unexpected AC/power loss. If [Power Off] is selected, the AC/power remains off when the power recovers. If [Power On] is selected, the AC/power resumes and the system starts to boot up when the power recovers.

Deep Sleep

Mobile platforms support Deep S4/S5 in DC only and desktop platforms support Deep S4/S5 in AC only. The default value is [Disabled].

Onboard Debug Port LED

Use this to enable or disable the Onboard Debug Port LED. The default value is [Auto].

3.3.7 USB Configuration

Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
Advanced
USB 2.0 Controller [Enabled]
Legacy USB Support [Enabled]
To enable or disable USB 2.0 Controller.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.15.1236. Copyright (C) 2012 American Megatrends, Inc.

USB 2.0 Controller

Use this item to enable or disable the use of USB 2.0 controller.

Legacy USB Support

Use this option to select legacy support for USB devices. There are four configuration options: [Enabled], [Auto], [Disabled] and [UEFI Setup Only]. The default value is [Enabled]. Please refer to below descriptions for the details of these four options:

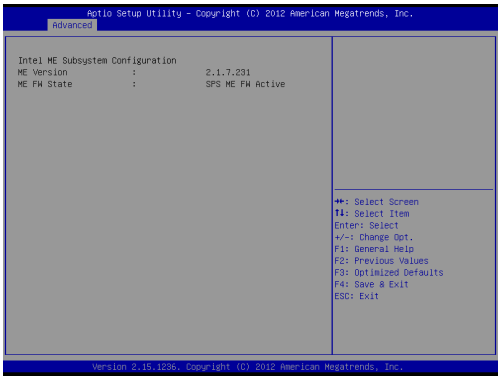
[Enabled] - Enables support for legacy USB.

[Auto] - Enables legacy support if USB devices are connected.

[Disabled] - USB devices are not allowed to use under legacy OS and UEFI setup when [Disabled] is selected. If you have USB compatibility issues, it is recommended to select [Disabled] to enter OS.

[UEFI Setup Only] - USB devices are allowed to use only under UEFI setup and Windows / Linux OS.

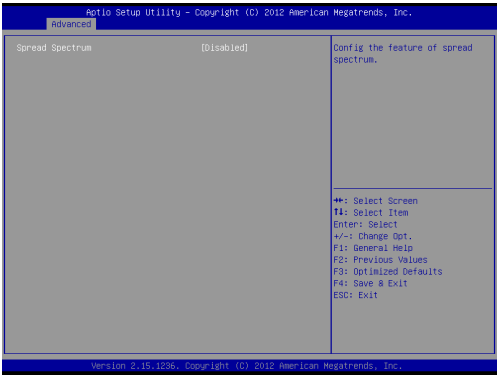
3.3.8 Intel® ME Subsystem


Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
Advanced
Intel ME Subsystem Configuration
ME Version : 2.1.7.231
ME FW State : SPS ME FW Active
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.15.1236. Copyright (C) 2012 American Megatrends, Inc.

Intel® ME Subsystem

Display information regarding Intel® Management Engine.

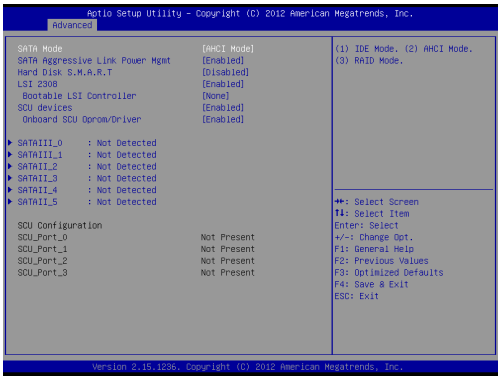
3.3.9 Clock Generator Configuration



Spread Spectrum

It is recommended to disable this option for better system stability.

3.3.10 Storage Configuration



SATA Mode Selection

This item is for SATAIII_0, SATAIII_1 and SATAII_PORT_0 ports. Use this to select SATA mode. Configuration options: [IDE Mode], [AHCI Mode], [RAID Mode] and [Disabled]. The default value is [AHCI Mode].

AHCI (Advanced Host Controller Interface) supports NCQ and other new features that will improve SATA disk performance but IDE mode does not have these advantages.

SATA Aggressive Link Power Management

Use this item to configure Aggressive Link Power Management.

Hard Disk S.M.A.R.T.

Use this to enable or disable S.M.A.R.T. (Self-Monitoring, Analysis, and Reporting Technology).

LSI 2308

This item is for LSI_SAS_0 and LSI_SAS_1 ports. Use this to enable or disable LSI SAS operation mode.

Bootable LSI Controller

Use this to select LSI SAS Option ROM

SCU Devices

Use this to enable or disable SCU devices.

Onboard SCU Oprom/Driver

Use this to enable or disable LSI SAS Option ROM. If Option ROM is disabled, you cannot use the SATA devices connected to the LSI SAS controller as Boot Device.

We recommend to use Intel® C602 SATA ports (SATAIII_0, SATAIII_1 and SATAII_PORT_0) for your bootable devices. This will minimum your boot time and get the best performance. But if you still want to boot from the LSI SAS controller, you can enable it from the UEFI.

3.3.11 Super IO Configuration

Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
Advanced
Serial Port 1 Configuration
Serial Port 2 Configuration
Set Parameters of Serial Port 1 (COM1)
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.15.1236. Copyright (C) 2012 American Megatrends, Inc.

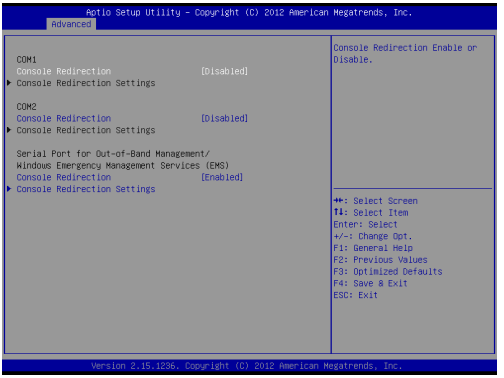
Serial Port 1 Configuration

Use this item to configure the onboard serial port 1.

Serial Port 2 Configuration

Use this item to configure the onboard serial port 2.

3.3.12 Serial Port Console Redirection



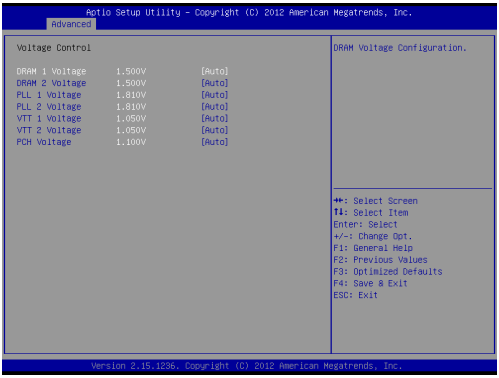
Console Redirection

Use this option to enable or disable Console Redirection.

Console Redirection Settings

Use this option to configure Console Redirection Settings.

3.3.13 Voltage Control


Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
Advanced
Voltage Control
DRAM 1 Voltage 1.500V [Auto]
DRAM 2 Voltage 1.500V [Auto]
PLL 1 Voltage 1.810V [Auto]
PLL 2 Voltage 1.810V [Auto]
VTT 1 Voltage 1.050V [Auto]
VTT 2 Voltage 1.050V [Auto]
PCH Voltage 1.100V [Auto]
DRAM Voltage Configuration.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.15.1236. Copyright (C) 2012 American Megatrends, Inc.

DRAM 1 Voltage

Use this to select DRAM 1 Voltage. The default value is [Auto].

DRAM 2 Voltage

Use this to select DRAM 2 Voltage. The default value is [Auto].

PLL 1 Voltage

Use this to select CPU PLL 1 Voltage. The default value is [Auto].

PLL 2 Voltage

Use this to select CPU PLL 2 Voltage. The default value is [Auto].

VTT 1 Voltage

Use this to select VTT 1 Voltage. The default value is [Auto].

VTT 2 Voltage

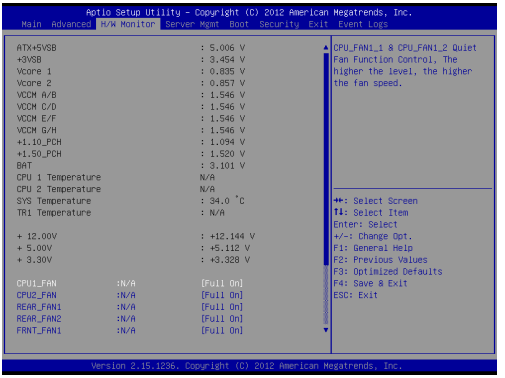
Use this to select VTT 2 Voltage. The default value is [Auto].

PCH Voltage

Use this to select PCH Voltage. The default value is [Auto].

3.4 Hardware Health Event Monitoring Screen

In this section, it allows you to monitor the status of the hardware on your system, including the parameters of the CPU temperature, motherboard temperature and the critical voltage.


Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
Main Advanced H/W Monitor Server Mgmt Boot Security Exit Event Logs
ATX+5VSB : 5.006 V
+3VSB : 3.454 V
Vcore 1 : 0.835 V
Vcore 2 : 0.857 V
VCCM A/B : 1.546 V
VCCM C/D : 1.546 V
VCCM E/F : 1.546 V
VCCM G/H : 1.546 V
+1.10_PCH : 1.094 V
+1.50_PCH : 1.520 V
BAT : 3.101 V
CPU 1 Temperature N/A
CPU 2 Temperature N/A
SYS Temperature : 34.0 °C
TR1 Temperature : N/A
+ 12.00V : +12.144 V
+ 5.00V : +5.112 V
+ 3.30V : +3.328 V
CPU1_FAN :N/A [Full On]
CPU2_FAN :N/A [Full On]
REAR_FAN1 :N/A [Full On]
REAR_FAN2 :N/A [Full On]
FRNT_FAN1 :N/A [Full On]
CPU_FAN1_1 & CPU_FAN1_2 Quiet Fan Function Control, The higher the level, the higher the fan speed.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.15.1236. Copyright (C) 2012 American Megatrends, Inc.

CPU1_FAN Setting

This allows you to set the speed of CPU1_FAN. The default value is [Full On].

CPU2_FAN Setting

This allows you to set the speed of CPU2_FAN. The default value is [Full On].

REAR_FAN1 Setting

This allows you to set the speed of REAR_FAN1. The default value is [Full On].

REAR_FAN2 Setting

This allows you to set the speed of REAR_FAN2. The default value is [Full On].

FRNT_FAN1 Setting

This allows you to set the speed of FRNT_FAN1. The default value is [Full On].

FRNT_FAN2 Setting

This allows you to set the speed of FRNT_FAN2. The default value is [Full On].

FRNT_FAN3 Setting

This allows you to set the speed of FRNT_FAN3. The default value is [Full On].

FRNT_FAN4 Setting

This allows you to set the speed of FRNT_FAN4. The default value is [Full On].

Watch Dog Timer

This allows you to enable or disable the Watch Dog Timer. The default value is [Disabled].

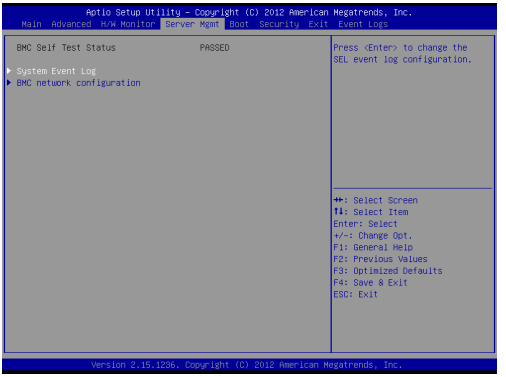
Case Open Feature

This allows you to enable or disable the Case Open Feature. The default value is [Enabled].

Clear Status

Enable to clear case open status if case open has been detected.

3.5 Server Management


Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
Main Advanced H/W Monitor Server Mgmt Boot Security Exit Event Logs
BMC Self Test Status PASSED
System Event Log
BMC network configuration
Press <Enter> to change the SEL event log configuration.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.15.1236. Copyright (C) 2012 American Megatrends, Inc.

System Event Log

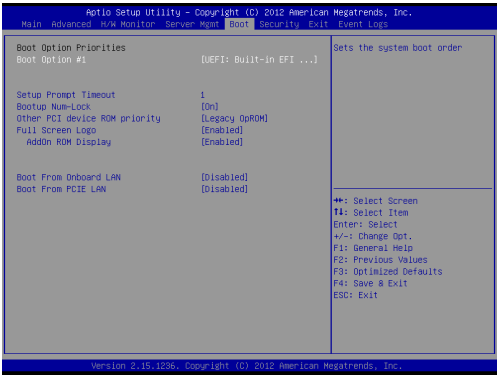
Enter to configure System Event Logging features during boot.

BMC Network Configuration

Enter to configure BMC Network parameters.

3.6 Boot Screen

In this section, it will display the available devices on your system for you to configure the boot settings and the boot priority.


Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
Main Advanced H/W Monitor Server Mgmt Boot Security Exit Event Logs
Boot Option Priorities
Boot Option #1 [UEFI: Built-in EFI ...]
Setup Prompt Timeout 1
Bootup Num-Lock [On]
Other PCI device ROM priority [Legacy OpROM]
Full Screen Logo [Enabled]
AddOn ROM Display [Enabled]
Boot From Onboard LAN [Disabled]
Boot From PCIE LAN [Disabled]
Sets the system boot order
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.15.1236. Copyright (C) 2012 American Megatrends, Inc.

Boot Option #1

Select boot option #1.

Setup Prompt Timeout

This shows the number of seconds to wait for setup activation key. 65535(0XFFFF) means indefinite waiting.

Bootup NumLock State

If this item is set to [On], it will automatically activate the Numeric Lock function after boot-up.

Other PCI Device ROM Priority

Use this to adjust the PCI ROM Priority. The default value is [Leg acy ROM].

Full Screen Logo

Use this item to enable or disable OEM Logo. The default value is [Enabled].

AddOn ROM Display

Use this option to adjust AddOn ROM Display. If you enable the option “Full Screen Logo” but you want to see the AddOn ROM information when the system boots, please select [Enabled]. Configuration options: [Enabled] and [Disabled]. The default value is [Enabled].

Boot From Onboard LAN

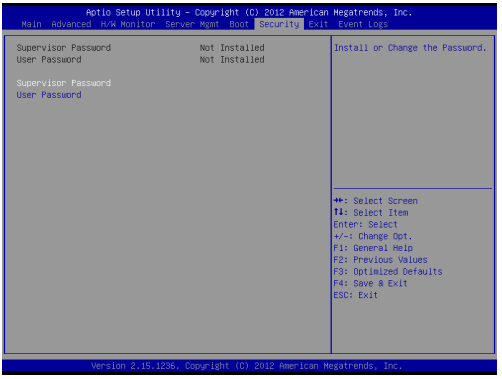
Use this item to enable or disable the Boot From Onboard LAN feature.

Boot From PCIE LAN

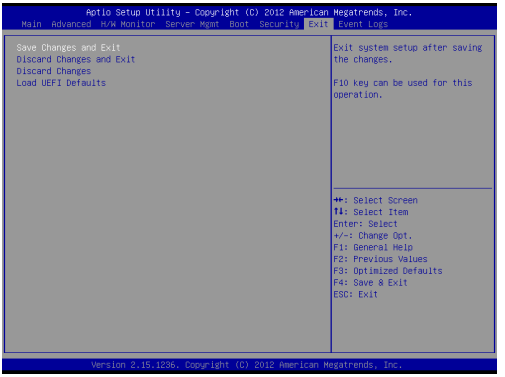
Use this item to enable or disable the Boot From PCIE LAN feature.

3.7 Security Screen

In this section, you may set or change the supervisor/user password for the system. For the user password, you may also clear it.


Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
Main Advanced H/W Monitor Server Mgmt Boot Security Exit Event Logs
Supervisor Password Not Installed
User Password Not Installed
Supervisor Password
User Password
Install or Change the Password.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.15.1236. Copyright (C) 2012 American Megatrends, Inc.

3.8 Exit Screen


Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
Main Advanced H/W Monitor Server Mgmt Boot Security Exit Event Logs
Save Changes and Exit
Discard Changes and Exit
Discard Changes
Load UEFI Defaults
Exit system setup after saving the changes.
F10 key can be used for this operation.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.15.1236. Copyright (C) 2012 American Megatrends, Inc.

Save Changes and Exit

When you select this option, the following message “Save configuration changes and exit setup?” will pop-out. Select [Yes] to save the changes and exit the UEFI SETUP UTILITY.

Discard Changes and Exit

When you select this option, the following message “Discard changes and exit setup?” will pop-out. Select [Yes] to exit the UEFI SETUP UTILITY without saving any changes.

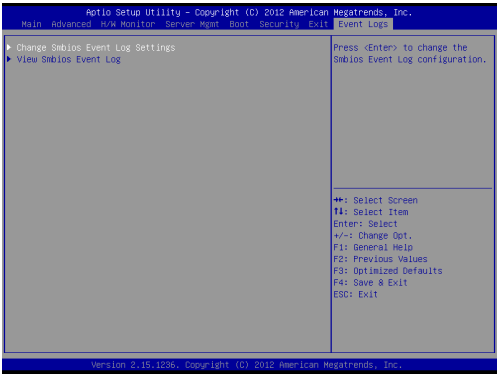
Discard Changes

When you select this option, the following message “Discard changes?” will pop-out. Select [Yes] to discard all changes.

Load UEFI Defaults

Load UEFI default values for all the setup questions. F9 key can be used for this operation.

3.9 Event Logs


Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
Main Advanced H/W Monitor Server Mgmt Boot Security Exit Event Logs
Change Smbios Event Log Settings
View Smbios Event Log
Press <Enter> to change the Smbios Event Log configuration.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.15.1236. Copyright (C) 2012 American Megatrends, Inc.

Change Smbios Event Log Settings

This allows you to configure the Smbios Event Log Settings.

View Smbois Event Log

This allows you to view the Smbios Event Log.

Chapter 4: Software Support

4.1 Install Operating System

This motherboard supports Microsoft® Windows® Server 2003 / 2003 R2 / 2008 / 2008 R2 / Linux compliant. Because motherboard settings and hardware options vary, use the setup procedures in this chapter for general reference only. Refer your OS documentation for more information.

4.2 Support CD Information

The Support CD that came with the motherboard contains necessary drivers and useful utilities that enhance the motherboard's features.

4.2.1 Running The Support CD

To begin using the support CD, insert the CD into your CD-ROM drive. The CD automatically displays the Main Menu if "AUTORUN" is enabled in your computer. If the Main Menu does not appear automatically, locate and double click on the file "ASRSETUP.EXE" in the Support CD to display the menu.

4.2.2 Drivers Menu

The Drivers Menu shows the available device's drivers if the system detects installed devices. Please install the necessary drivers to activate the devices.

4.2.3 Utilities Menu

The Utilities Menu shows the application softwares that the motherboard supports. Click on a specific item then follow the installation wizard to install it.

4.2.4 Contact Information

If you need to contact ASRock or want to know more about ASRock, you're welcome to visit ASRock's website at http://www.asrock.com; or you may contact your dealer for further information.

Chapter 5: Troubleshooting

5.1 Troubleshooting Procedures

Follow the procedures below to troubleshoot your system.

Always unplug the power cord before adding, removing or changing any hardware components. Failure to do so may cause physical injuries to you and damages to motherboard components.

1. Disconnect the power cable and check whether the PWR LED is off.
2. Unplug all cables, connectors and remove all add-on cards from the motherboard. Make sure that the jumpers are set to default settings.
3. Confirm that there are no short circuits between the motherboard and the chassis.
4. Install a CPU and fan on the motherboard, then connect the chassis speaker and power LED.

If there is no power...

1. Confirm that there are no short circuits between the motherboard and the chassis.
2. Make sure that the jumpers are set to default settings.
3. Check the settings of the 115V/230V switch on the power supply.
4. Verify if the battery on the motherboard provides ~3VDC. Install a new battery if it does not.

If there is no video...

1. Try replugging the monitor cables and power cord.
2. Check for memory errors.

If there are memory errors...

1. Verify that the DIMM modules are properly seated in the slots.
2. Use recommended DDR3 1600/1333/1066 ECC DIMMs.
3. If you have installed more than one DIMM modules, they should be identical with the same brand, speed, size and chip-type.
4. Try inserting different DIMM modules into different slots to identify

faulty ones.

5. Check the settings of the 115V/230V switch on the power supply.

Unable to save system setup configurations...

1. Verify if the battery on the motherboard provides ~3VDC. Install a new battery if it does not.
2. Confirm whether your power supply provides adaquate and stable power.

Other problems...

1. Try searching keywords related to your problem on ASRock's FAQ page:
   http://www.asrock.com/support/faq.asp
2. Try downloading and updating the latest UEFI on ASRock's website:
   http://www.asrock.com/support/download.asp

5.2 Technical Support Procedures

If you have tried the troubleshooting procedures mentioned above and the problems are still unsolved, please contact ASRock's technical support with the following information:

1. Your contact information
2. Model name, BIOS version and problem type.
3. System configuration.
4. Problem description.

You may contact ASRock's technical support at:
http://www.asrock.com/support/tsd.asp

5.3 Returning Merchandise for Service

For warranty service, the receipt or a copy of your invoice marked with the date of purchase is required. By calling your vendor or going to our RMA website (http://www.asrock.com/support/index.asp?cat=RMA) you may obtain a Returned Merchandise Authorization (RMA) number.
The RMA number should be displayed on the outside of the shipping carton which is mailed prepaid or hand-carried when you return the motherboard to the manufacturer. Shipping and handling charges will be applied for all orders that must be mailed when service is complete.

This warranty does not cover damages incurred in shipping or from failure due to alteration, misuse, abuse or improper maintenance of products.

Contact your distributor first for any product related problems during the warranty period.